

**Southeastern  
Massachusetts  
University**

**General Catalogue  
1982-1984**



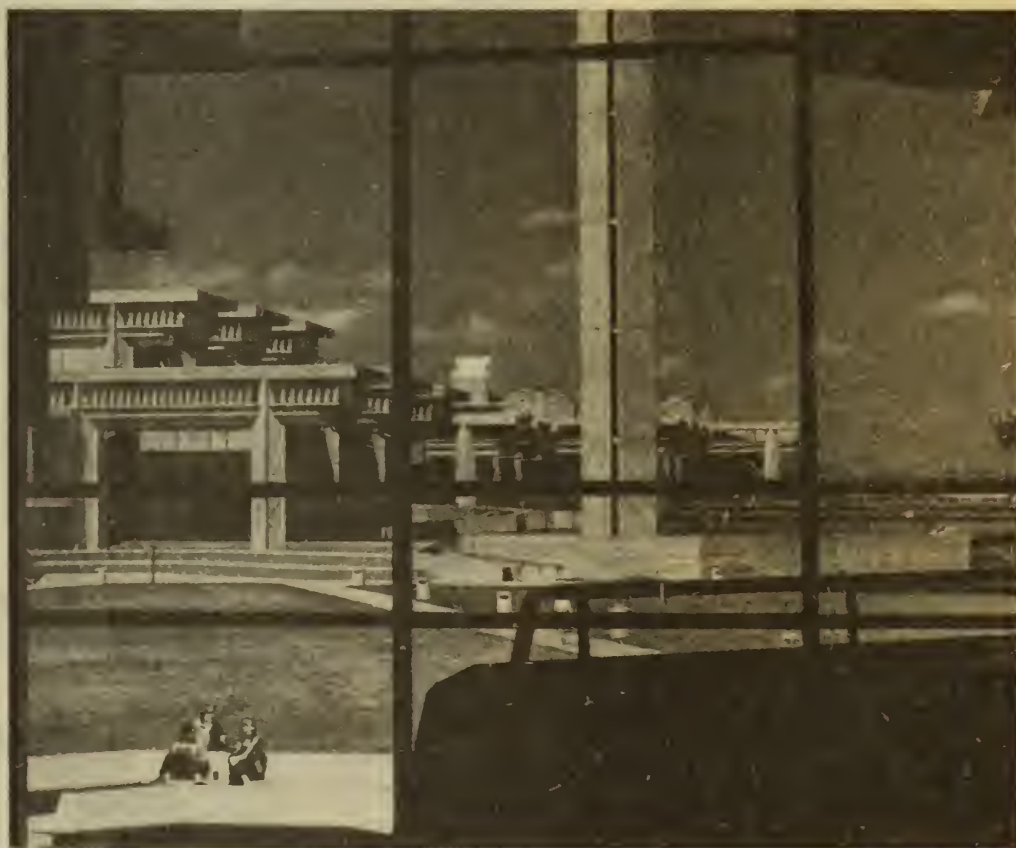


# General Catalogue 1982-1984

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## Southeastern Massachusetts University

North Dartmouth,  
Massachusetts



For all admissions  
information contact:  
**The Director of Admissions**  
Southeastern Massachusetts  
University,  
North Dartmouth,  
Massachusetts 02747  
Telephone: (617) 999-8605





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Cover photograph by **Manuel F. Pereira** of Southeastern Massachusetts University's Audio Visual Department.

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## Accreditation and Institutional Membership

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**Southeastern Massachusetts University or its colleges, departments, or programs are accredited by the following associations:**

American Chemical Society

Accreditation Board for Engineering and Technology

National Association of Schools of Art and Design

National League for Nursing

New England Association of Schools and Colleges

**Southeastern Massachusetts University is an institutional member in the following associations:**

Affirmative Action of Massachusetts

American Anthropologists Association

American Association of Collegiate Registrars and Admissions Officers

American Association of Collegiate Schools of Business

American Association of Higher Education

American Association of State Colleges and Universities

American Association of University Women

American Association for Affirmative Action

American College Health Association

American Council on Education

American Library Association

American Mathematical Society

American Personnel and Guidance Association

American Society for Engineering Education

American Society for Public Administration

Association of College Unions-International

Association of College and University Housing Officers-International

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Association of Governing Boards of Universities and Colleges

Association of Departments of English

Association of Physical Plant Administrators

Boston Area College Housing Association

Central Opera Service

College Art Association of America

College Entrance Examination Board

College Placement Council

College and University Personnel Association

College and University System Exchange

Council for Advancement and Support of Education

Eastern Association of Student Financial Aid Administrators

Eastern College Personnel Officers

Educational Testing Service

International Association of  
Campus Law Enforcement Administrators

International Association of  
College and University Security Directors

Massachusetts Association of Colleges of Nursing

Massachusetts Association of  
Student Financial Aid Administrators

Massachusetts Association of Women Deans

Massachusetts Higher Education Consortium

Massachusetts Library Association

Massachusetts Transfer Council

Mathematical Association of America

National Art Education Association

National Association of College Administrators and Counselors

National Association of College Admissions Counselors

National Association of College Auxiliary Services

National Association of College Stores

National Association of College and University Attorneys

National Association of College and University Business Officers

National Association of College and University Food Services

National Association of Educational Buyers

National Association of Schools of Art and Design

National Association of Student Financial Aid Administrators

National Association of Student Personnel Administrators

National Association of Women Deans,  
Administrators and Counselors

National Council for Textile Education

National Entertainment and Campus Activities Association

National League for Nursing

National Opera Association

Northeast Association of College and University Housing Officers

Northeastern Association of Graduate Schools

New England Association of College Admission Counselors

New England Association of Collegiate Registrars and  
Admission Officers

New England Association of Schools and Colleges

# Undergraduate and Graduate Programs

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## **Undergraduate (Bachelor of Arts or Science Degree)**

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### **College of Arts and Sciences**

Biology

Chemistry

Computer Science

Economics

English

Foreign Literature and Languages (French, German,  
Portuguese, Spanish)

History

Humanities and Social Sciences

Mathematics

Medical Technology

Multidisciplinary Studies

Philosophy

Physics

Political Science

Psychology

Sociology/Anthropology

(Students may meet state accreditation standards through  
course work in the Department of Education).

### **College of Business and Industry**

Accounting

Finance

Human Resources Management

Management

Marketing

Textile Chemistry

Textile Technology

### **College of Engineering**

Civil Engineering



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Computer Engineering

Computer Science

Construction Engineering

Electrical Engineering

Mechanical Engineering

Electrical Engineering Technology

Mechanical Engineering Technology

**College of Visual and Performing Arts**

Art Education

Art History

Design

Fine Arts

Music

**College of Nursing**

Community Nursing

Institutional Nursing

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**Graduate (Masters Degree)**

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Art Education

Bilingual-Bicultural Education

Biology

Business Administration

Chemistry

Electrical Engineering

Mathematics

Medical Laboratory Science

Physics

Textile Chemistry

Textile Technology

Visual Design

# Academic Calendar

1982-1983

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**First Semester: 1982**

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September 1	Academic Year Commences
September 7	Classes Begin, Fall Semester
October 11	Columbus Day, No Classes
October 25	Mid-Semester
November 11	Veterans' Day, No Classes
November 24	Thanksgiving Recess Begins (after last class or lab)
November 29	Classes Resume, 8:00 a.m.
December 14	Classes End, Fall Semester
December 15	Study Day (No Examinations)
December 16	Examinations Begin
December 23	Examinations End
December 23	Mid-Year Recess

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**Second Semester: 1983**

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January 17	Classes Begin, Spring Semester
February 21	Washington's Birthday, No Classes
March 7	Mid-Semester
March 11	Spring Vacation Begins (after last class or lab)
March 21	Classes Resume, 8:00 a.m.
April 18	Patriots' Day, No Classes
May 6	Classes End, Spring Semester
May 9	Examinations Begin
May 16	Examinations End
June 5	Commencement
June 30	Academic Year Ends

# 1983-1984

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## First Semester: 1983

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September 1	Classes Begin, Fall Semester
September 5	Labor Day, No Classes
October 10	Columbus Day, No Classes
October 24	Mid-Semester
November 11	Veterans' Day, No Classes
November 23	Thanksgiving Recess Begins (after last class or lab)
November 28	Classes Resume, 8:00 a.m.
December 13	Classes End, Fall Semester
December 14	Study Day (No Examinations)
December 15	Examinations Begin
December 22	Examinations End
December 22	Mid-Year Recess

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## Second Semester: 1984

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January 17	Classes Begin, Spring Semester
February 20	Washington's Birthday, No Classes
March 5	Mid-Semester
March 9	Spring Vacation Begins (after last class or lab)
March 19	Classes Resume, 8:00 a.m.
April 16	Patriots' Day, No Classes
May 4	Classes End, Spring Semester
May 7	Examinations Begin
May 14	Examinations End
June 3	Commencement
June 29	Academic Year Ends

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**Board of Trustees****Manuel Kyriakakis**

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1981-82

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and Special Programs

**Richard J. Ward**

B.A., M.A., Ph.D.  
Dean of the College of  
Business and Industry

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**SMU: An Overview**

Southeastern Massachusetts University is a publicly supported coeducational institution of higher learning. It is fully accredited by the New England Association of Schools and Colleges, Inc. SMU is committed to a philosophy of excellence within the limits of its resources. It has assumed three major responsibilities: instruction, research, and service to the larger community of which it is a subsidiary society. Its varied curricula are predicated on the belief that nothing is truly learned until it has been integrated with the purposes of the individual, for facts and principles can never serve any worthy human purpose unless they are restrained and guided by character. Thus, the University earnestly endeavors to provide a climate which will contribute to the development of balanced individuals of wider personal contacts and interest as well as quickened imaginations and disciplined intelligence.

The University is situated on a wooded 710-acre site in Dartmouth, a town of 23,000 bordering Buzzards Bay and proximate to the major cities of southeastern New England and the cultural and recreational resources of the region. Instruction is given in the colleges of Arts and Sciences, Business and Industry, Engineering, Visual and Performing Arts, Nursing and through the Division of Continuing Studies and Special Programs. The Uni-

versity plays a role in the economic life of the region through its colleges and facilities which make professional and teaching services available to commerce and industry.

Southeastern Massachusetts Technological Institute was created in 1960 by an act of the General Court on the recommendation of the Governor to provide a diversified educational program for the Southeastern Massachusetts area and for the Commonwealth. In enacting this legislation, the General Court directed that SMTI assume the responsibilities of two existing colleges in the area — Bradford Durfee College of Technology and the New Bedford Institute of Technology, both of which had been established in 1895.

These institutions were consolidated into SMTI in 1964 and since that time the Institution has been engaged in an intensive program of development. One aspect of this development has been enrichment of the curriculum. In September of 1965, baccalaureate degree programs in the humanities and social science were instituted to complement existing programs in engineering, the sciences, business administration, textile technology and the fine and applied arts.



Explanatory Notes	Admissions
<p>As a result of this enriching diversification of curricular offerings, Governor Francis B. Sargent of the Commonwealth of Massachusetts signed into law at the Commencement Exercises, June 9, 1969, a bill advocating a change of name from Southeastern Massachusetts Technological Institute to Southeastern Massachusetts University. Thus, on September 7, 1969, the Institute officially became a University.</p>	<p>The General Catalogue contains general administrative and academic information, as well as specific descriptions of schools and departments and the courses offered in each.</p> <p>Because the Catalogue must be prepared well in advance of the year it covers, changes in some programs inevitably will occur. Courses as described in the Catalogue are subject to change without notice, and some listed courses are not offered each year. The "Course Listings", a publication available from the Registrar's Office shortly before registration begins each semester, provides information on classes to be offered, instructors, enrollment restrictions (for example, major only), class hours, and room assignments. In addition, students should consult the appropriate academic unit for current information.</p>
<p>The student body of the University numbers more than 5,000 with almost a 1:1 ratio existing between males and females.</p>	<p>Decisions on applications will be made by members of the admissions staff based on standards set by the faculty. Prior to entrance, applicants must have completed satisfactorily a secondary school course or its equivalent (except for "early entrance" students). A significant portion of the applicant's secondary school courses must have been of college preparatory quality and substance.</p>
<p>The full-time faculty numbers 297 during the current year, with over 75 percent terminally qualified, i.e. with the doctorate or its equivalent in their respective disciplines.</p>	<p>Admission to SMU is on a selective basis. The University is interested in applicants whose scholastic achievement, aptitudes, interest, character, and established study habits give promise of success in a senior college program. Qualified candidates will be admitted on a "rolling admission" basis until the capacity of the University to care properly for the students has been reached.</p>
<p>The University's national award winning campus, its concept created by architect Paul Rudolph, includes an Auditorium, Gymnasium-Natatorium, Campus Center, Library-Communications Center, Dining and Residence Halls. The beautifully landscaped campus also includes playing fields for major sports. Thus SMU's students can pursue a wide range of programs in a stimulating and balanced physical environment.</p>	<p><b>Affirmative Action-Equal Opportunity</b></p> <p>The University is committed to an admissions process which does not discriminate against any applicant because of race, color, religion, age, sex, national origin, or handicap. Students are recruited and admitted on the basis of academic performance and promise.</p>
	<p>The Affirmative Action policy governing the recruitment and admission of women and minorities is not intended as discriminatory, but rather as assurance that those who may have been excluded in the past are guaranteed equal opportunity in the future.</p> <p>This school is authorized under Federal law to enroll nonimmigrant alien students.</p> <p><b>Freshman Application Procedure</b></p> <p>Applicants who will have, prior to entrance, secondary school or equivalency diplomas and who have never attended degree granting post-secondary educational institutions are eligible for consideration for freshman admission. All others are classified as transfer applicants.</p> <p><b>An Alternate Admissions Program: College Now</b></p> <p>Admission through the College Now program is available to students who have the ability, desire and motivation to benefit from the University's degree programs but have been unable to acquire the necessary academic skills to be accepted via regular admission. Enrollment is limited to approximately one hundred freshmen who enter as full time students each September.</p> <p>Students who wish to be considered for admission through College Now must follow the regular admission procedure. Upon receipt of the application additional materials will be forwarded.</p>

### **Application Fee**

A non-refundable application fee must accompany all admissions applications. The fee for residents of Massachusetts is \$18.00; the fee for all others is \$25.00.

The University recognizes that these fees may present a significant financial hardship for some applicants and is prepared to waive the fee in appropriate instances. Secondary school students who are eligible for the College Board Admissions Testing Program fee waiver should have their counselors attach a copy of the waiver form to the SMU admissions application. Transfer and/or adult applicants should support their fee waiver requests with a letter from a social worker, financial aid officer, or clergy.

### **Application and Transcripts**

The deadline for application is not predetermined; it will be established each year by the Admissions Committee. When it is judged that there are a sufficient number of qualified applicants for the available space in each program, admissions will be closed. Secondary-school students are advised to submit complete credentials as soon as possible after the first marking period of the senior year.

It is the responsibility of the applicant to ensure that the completed form is submitted to SMU. The school record should include the applicant's academic record for the ninth, tenth, eleventh, and at least the first marking period of the twelfth grade, and his/her class standing for those years. Unless this procedure is followed properly, applications will be returned.

### **Scholastic Aptitude Test**

All applicants for freshman entrance (except adults) are required to take the Scholastic Aptitude Test given by the College Entrance Examination Board.

Arrangements for testing can be made by writing to:

College Board  
Box 592  
Princeton, N.J. 08540 or  
Box 1025  
Berkeley, Cal. 94701.

Adult applicants (those who completed secondary school at least five years prior to entering SMU) may substitute the School and College Ability Test (SCAT) for the Scholastic Aptitude Test (SAT). Regularly scheduled administrations of the SCAT will be held on the SMU campus. Candidates should contact the Admissions Office for further details.

### **Achievement Tests**

Achievement Tests are not required for admission. However, the University urges non-adult applicants for freshman entrance to submit test results in appropriate subject matter areas. The achievement tests have significant predictive value, especially in the sciences, and can be a valuable source of data in the decision process.

We suggest that applicants seek advice relative to the achievement tests from their secondary school guidance counselors.

The foreign language achievement tests are used for placement when an applicant intends to continue at SMU the study of a language begun prior to entrance. At present French, German, Italian, Latin, Russian, Spanish, and Portuguese are being offered at SMU. Since there is no CEEB achievement test offered in Portuguese, placement will be determined by the Department of Foreign Literature and Languages prior to registration.

### **Test of English as a Foreign Language**

Foreign national applicants whose native language is other than English must arrange to complete the Test of English as a Foreign Language (TOEFL), which is offered at regularly scheduled intervals throughout the world. Foreign nationals currently studying in the United States or in institutions abroad where the language of instruction is English are exempted from the TOEFL requirement. Complete information concerning the TOEFL can be obtained from the College Entrance Examination Board.

### **Preferred Test Dates**

Applicants should submit the required test scores as early as practicable. Since space in many of the academic programs and in the dormitories is severely limited, delay beyond the January series should be avoided. Scores on tests taken prior to the current academic year may be used with or substituted for current tests in meeting the requirement.

### **Test Score Reports**

Full responsibility for arranging to complete the appropriate testing program must be assumed by each applicant. Official scores must be reported directly from CEEB headquarters. SMU's data processing system utilizes the magnetic tape reports which are supplied only by the CEEB, and applicants must request that their score reports be sent to SMU (Code No. 3786).

### **Art Portfolio/Music Audition**

See College of Visual and Performing Arts.

### **Interviews**

Personal interviews are not part of the admissions procedure. It is neither possible nor necessary for most applicants to be interviewed individually.

Group interviews and campus tours will be scheduled at least once a week, and appointments may be made by writing or telephoning the Admissions Office (617-999-8605). Most questions can be answered readily in an exchange of correspondence, but if a unique problem requires personal discussion, an appointment can be arranged. Complete data relating to the problem must be available at the time of the interview in order to provide a basis of intelligent discussion.

Adult applicants who would like to discuss their educational plans are encouraged to contact the Admissions Office in order that an appointment can be arranged.



### **General Course Requirements**

It is expected that the successful applicant's secondary school program will include at least twelve units of college preparatory courses including the following: four units of English, two units of Social Science (including one in U.S. History), two units of Mathematics, two units of the same Foreign Language, one unit of Natural Science.

Although two units of the same foreign language are strongly recommended for all applicants, they are required only for applicants to programs within the College of Arts and Sciences (all programs).

### **Specific Course Requirements**

Certain programs within the University require specific course background in addition to the general course requirements. These programs and their additional requirements are listed below.

#### **Chemistry, Computer Science, Engineering, Engineering Technology, Mathematics, Physics, and Textile Chemistry require:**

Three and one-half units in College Preparatory Mathematics which must include at least two units in Algebra and one-half unit in Trigonometry. Either Physics and Chemistry, one of which must be a laboratory course, or three units in Natural Science, one of which must be a laboratory course in Physics or Chemistry. Physics is strongly recommended for all engineering applicants.

#### **Biology, Medical Technology, Nursing and Textile Technology require:**

Three units of College Preparatory Mathematics which must include two units of Algebra. Two units of Natural Science.

#### **Business Administration requires:**

Three units of College Preparatory Mathematics which must include two units of Algebra.

A person of extraordinary promise and talent may request admission although he or she does not meet all the requirements specified above.

#### **Early Entrance**

The University recognizes that superior secondary school students sometimes exhaust the curriculum offerings of their schools by the end of their junior year. These students are eligible for admissions consideration without a secondary school diploma. It is expected that they will present superior records of scholastic achievement and above average aptitude test results. Early entrance candidates should obtain a written agreement from the secondary school assuring that a diploma will be granted upon satisfactory completion of one or two semesters of college work.

### **Transfer Application Procedure**

The University is very much interested in admitting qualified transfer students. Approximately one-third of the entering students each year are transfers from other colleges. The University was the first of the public four year institutions to approve the Commonwealth Transfer Compact, which facilitates transfers from the public community colleges, and endorses the transfer guidelines established by the Massachusetts State Transfer Articulation Committee.

At SMU transfer applicants are treated similarly to freshman applicants with respect to admissions, financial aid, and campus housing assignments. During the summer there is a special orientation program for all entering transfer students.

The quality and quantity of academic work completed at the previous institutions determine the amount of transfer credit awarded. Transfer applicants should submit complete credentials as soon as possible after the end of the fall semester.

The admissions requirements and procedures for transfer applicants are quite similar to those for freshman entrance. Transfer students who will have received associate or bachelor's degrees prior to entering SMU are not required to submit secondary school records. Transfer students who can present the equivalent of at least thirty semester hours of transferable credit are not required to submit

SAT or SCAT results. With these exceptions transfer applicants must follow the freshman application procedures as previously described.

Transfer applicants must also submit official transcripts from all post-secondary degree-granting institutions attended. Applicants enrolled in a program of study at the time of application must submit a listing of all courses in progress. Applicants are encouraged to submit letters of recommendation from an academic dean at each of the institutions at which they have been degree candidates.

#### **Advanced Standing**

Transcripts of courses completed at other institutions prior to admittance will be evaluated by the Dean of the college into which the student is accepted. Transfer of credit will be recorded on the students' permanent record cards but will not be calculated in their grade point averages. Transfer credits from two-year institutions will be limited to not more than one-half of the number required for the SMU program.

The University has approved the use of the College Entrance Examination Board College Level Examination Program (CLEP). The program enables those who have reached the college level of education outside the classroom to demonstrate their achievement and to use the test results for college credit and/or placement.

For further information refer to "CLEP and Advanced Placement" under Academic Regulations.

Graduation requirements currently include, but are not restricted to, the following:

1. The satisfactory completion of all work in the major field of concentration.
2. A cumulative grade point average of not less than 2.0 (on a 4.0 scale) for all degree requirements.
3. The satisfactory completion of 60 course credits at SMU. It is expected that students will spend their junior and senior years at SMU.

#### **Social Security Number**

SMU's data processing system has been programmed to use nine-digit numbers to identify applicants and students. We request that all applicants (except foreign students) submit their social security numbers for this purpose. Those who do not wish to volunteer their numbers will, of course, receive the same consideration as those who do.

Applicants who do submit their numbers can be assured that the University will respect and protect their privacy. Because these numbers are unique, their use facilitates the matching of various credentials, and we urge applicants to submit them.

#### **Quality Requirements**

To be accepted for admission into any program of study at SMU, an applicant must present a record of academic achievement which is adequate as preparation for doing work on a college level. Scores on the required CEEB

or SCAT test should indicate a capacity for such work. Special quality standards may be required for admission into departments in which certain aptitudes and preparation are of prime importance to the curriculum.

#### **Regional Student Program**

The New England Regional Student Program enables residents of Connecticut, Maine, New Hampshire, Rhode Island, and Vermont to be given special consideration for admission to SMU in certain curricula which are not offered at the public universities in their home states. Qualified applicants under this program are given priority over other out-of-state applicants, and if accepted pay in-state tuition at SMU. Secondary school guidance counselors or the New England Board of Higher Education, 68 Walnut Road, Wenham, Massachusetts 01984 can provide detailed information concerning the program.

#### **Special Students**

Students who are not candidates for an SMU degree may be allowed to register for courses as special students. Registration is contingent upon space being available in specific courses. All requests for special student status must be directed to the Registrar's Office.

#### **Testing Program**

Among the tests available on campus are the CLEP exams (see Academic Regulations section), the Adult Admissions Testing Program (AATP), Test of English as a Foreign Language (TOEFL), Challenge Exams in Nursing (CEN), Miller Analogies Test (MAT), Minnesota Engineering Test (MEAT), Doppelt Mathematical Reasoning Test (DMRT), Graduate Management Admissions Test (GMAT), Graduate Record Examination (GRE), Bilingual Fluency Examination (BFE), School and College Ability Test (SCAT) and the Massachusetts Real Estate Licensing Exams.

Pamphlets with additional information and/or registration material for any of these programs are available in the Division of Continuing Studies Office. All of the programs require registration prior to testing.

#### **Upward Bound**

Upward Bound is a program designed to generate skills and motivation necessary for success in education beyond high school. The Upward Bound Program is one of many located throughout the United States, funded by the U.S. Office of Education. SMU's Upward Bound emphasizes a rigorous six-week summer residential component where the students are provided with comprehensive instruction in basic academic skills. The summer program is reinforced by an academic-year session which provides weekly tutoring and workshops in financial aid, SAT preparation, choosing a career, selecting a college, etc.

#### **Project Excel**

Project Excel is a program for gifted high-school students. For 10th and 11th graders the program provides a challenging educational experience in a university environment and a variety of enrichment studies in the arts and the sciences. Also, talented 12th grade students may enroll in university courses for college credit based on the recommendation of the high-school counselor.

#### **Center for the Portuguese Speaking World**

In response to the academic and cultural interests of its predominantly Portuguese service area, SMU offers a wide diversity of courses in Portuguese Language and Literature, History, Political Science, and Sociology/Anthropology. Those course offerings which deal with Portuguese speaking nations and peoples around the world form part of the certificate program of the Center for the Portuguese Speaking World.

Successful completion of 18 credit hours in approved courses, including basic competency in the Portuguese language, and a senior honors paper, are the requirements for students wishing to receive a certificate in studies of the Portuguese Speaking World.

In addition, the Center conducts a speakers' series, an exchange program, Portuguese Cultural Week, and a Summer Institute on Portugal in cooperation with the Division of Continuing Studies.



## Student Expenses — Tuition and Fees

Inquiries concerning the Certificate program or sponsored events may be directed to: Chairperson, Center for the Portuguese Speaking World, Southeastern Massachusetts University, North Dartmouth, MA 02747

### Center for Jewish Culture

The Center, co-directed by Rabbi Bernard Glassman of Tifereth Israel Synagogue in New Bedford and Professor Robert Waxler of the SMU English Department, is the culmination of several programs offered at SMU over the past few years that have helped to create a climate of understanding between Jews and other ethnic and religious groups. These have included five-day Judaic Institutes which featured lectures by world-famous scholars. Centering on the modern Jewish experience, the Institutes raise issues significant to both Jews and non-Jews.

The Center initiates workshops, lectures, seminars and institutes that explore various aspects of Jewish culture and that enrich the lives of SMU students and faculty, and members of different ethnic and religious groups in the area.

### Matriculation Fee

A student who has been accepted for admission to SMU must submit a matriculation fee of \$50.00 in check or money order, made payable to SMU. This fee will be applied towards tuition, upon registration. Students who fail to make this payment before the designated date will not be allowed to matriculate. In the event of withdrawal, the fee will be refunded if notification is received in writing by the Director of Admissions prior to June 1.

### Tuition

As a state-supported institution, SMU's programs and facilities are available at modest tuition rates to residents of the Commonwealth of Massachusetts. Tuition charges are as follows:

Resident	
Undergraduate	\$ 939.00
Graduate	1,034.00
Non-resident	
Undergraduate	3,090.00
Graduate	3,176.00

The charges represent the tuition cost for a full-time student (12 credits or more) for the entire academic year. Tuition is subject to change due to the laws of the Commonwealth and the fiscal requirements of the University.

### Tuition Residency Requirements

A "resident student" is defined as one whose legal domicile shall have been within the Commonwealth of Massachusetts for a period not less than 12 months immediately preceding the date of the applicable semester. All others are

defined as "non-resident students". All students attending the university on a "student visa" will be considered as non-resident students.

No student shall be deemed to have become a resident student solely by attendance at the University. Resident students shall not lose their status as such as long as they are registered for successive semesters at the University. The President of the University is authorized to determine the residency status of all students in accordance with these policies, and his decision shall be final and binding.

In order to be charged as a resident student, a notarized residency form must be presented to the Bursar's Office.

Any willful misrepresentation by a student for the purpose of acquiring or retaining resident status shall be deemed sufficient cause for dismissal from the University.

A few general principles are included here to assist prospective students in considering their residency status. Usually, the domicile of a minor will be presumed to be that of the parents or guardian unless the minor is emancipated. One's domicile is the permanent home to which the student plans to return at the termination of any temporary residence elsewhere. "Permanent home" means that place which a person considers to be home either permanently or for the foreseeable future. One can have but a single domicile at any time. In changing domiciles, one retains the old domicile until fully acquiring a new one.

### Tuition Reduction Program

The Board of Trustees has authorized a program intended to offset rises in tuition by the awarding of tuition reductions to financially needy undergraduate day students who are legal residents of Massachusetts and U.S. citizens or eligible non-citizens as defined by the Federal guidelines for financial aid eligibility. Students must also have applied for the PELL (Basic Educational Opportunity) grant to be eligible and must demonstrate financial need as defined by Federal financial aid guidelines. These awards are made in increments up to a maximum of the full cost of tuition and are awarded by the Financial Aid Office. Eligibility is determined by demonstrated financial need on the same basis and the same application procedures and deadlines as with other University-administered aid programs.

### Tuition Waiver for Over 60

Students sixty years of age or over are exempt from tuition charges. Applications for tuition exemption may be obtained from the Bursar's Office. Fees must still be paid.

### General Fee

All students are assessed a maximum General Fee of \$80 per year, payable with the fall semester tuition. The fee is currently used to support the men's and women's athletic programs, student government, student publications, the student radio station, and various other student related activities. For part-time students the rate is \$8.00/per credit.

**Campus Center Fee**

A maximum \$50 per year Campus Center fee is also assessed all students, payable with the fall semester tuition. The fee is used to support the programming activities and the general administrative expenses involved in operating the Campus Center. A Board of Governors, composed of 13 students, 1 Alumnus and 2 Administrators, oversees the operation. For part-time students the rate is \$5.00/per credit.

**Payment Policy**

All charges are due and payable at a date set by SMU (usually two weeks prior to the start of classes each semester.) All bills will be mailed to the student's permanent address.

Any payments received after the due date indicated will be charged a \$5.00 late fee.

Students may not register until all charges have been paid or deferred. Deferment exception may be given by the Dean of Students if a financial problem has been caused by University error, personal tragedy or documented medical contingency.

**Orientation Fee**

A \$10.00 Orientation Fee is assessed all freshman and transfer students to defray the expenses of the Summer Orientation Program. In addition, freshmen are required to attend a two-day, overnight program, at an approximate cost of \$19.00

**Health Fee**

All students are assessed a maximum \$15.00 Health Fee, payable with the fall semester tuition. This fee is used to support the on-campus Health Services, as well as limited accident insurance. Part-time students pay \$1.50 per credit.

**Mass. PIRG Fee**

All students are assessed a \$6.00 per year Mass. PIRG (Public Interest Research Group) fee payable with the fall semester tuition. This fee is refundable directly through Mass. PIRG at the rate of \$3.00 per semester.

**Studio/Lab Fee**

Students registered in certain studio or laboratory courses are required to pay a \$10.00 Studio/Lab Fee, which is used to pay for supplementary instructional materials.

The number of such studio/lab passes required in any particular course offered at the University shall be determined by the Dean of the College in which the course is offered after consultation with the appropriate Department Chairperson and with the concurrence of the Dean of Faculty. The number of studio/lab passes required for any particular course shall be clearly stated in the Schedule of Courses published by the University prior to preregistration of students.

Students registered in clinical nursing courses are required to pay a fee for liability insurance.

**Library Fee**

All students are assessed a maximum \$30.00 per year library fee which is used to augment the Library/Learning Center. Part-time students pay \$3.00 per credit.

**Room and Board**

Room and Board for the 1982-83 academic year is:

15 meal plan:	
double room	\$2988.50
single room	\$3038.50
19 meal plan:	
double room	\$3192.50
single room	\$3242.50
Flexible 15 meal plan:	
double room	\$3159.00
single room	\$3209.00

Further details and instructions will be forwarded upon acceptance.

Room and board rates are subject to change by the Board of Trustees.

**Application Fee**

An \$18.00 non-refundable application fee is assessed all Massachusetts applicants, while a \$25.00 fee is assessed all non-Massachusetts applicants.

**Commencement Fee**

A commencement fee of \$35.00 will be assessed all students in their last semester prior to receiving a degree to help defray commencement costs.

In addition a \$10.00 alumni fee will be charged. This fee provides a one-year membership in the Alumni Association. A refund may be obtained by those not wishing to participate if application is made between February 1 and February 28.

These fees are normally due prior to the start of last semester classes.

**Books and Supplies**

Cost for books and supplies vary with class and curriculum, but \$300.00 per year is an estimated average. First year Engineering students have an additional expense of from \$25.00 to \$50.00 for engineering drawing equipment and related materials. Students in the College of Visual and Performing Arts may incur some additional expenses for paints, brushes and the like.

Students registered in clinical nursing courses have an additional expense for uniforms. The students are also responsible for providing their own transportation for clinical practice.

Medical Technology seniors have additional expenses for uniforms and lab coats, malpractice insurance, and commuting to Rhode Island hospitals.

**Refunds**

A student who withdraws from SMU for any reason before a semester is completed will be granted a refund of tuition according to the refund schedule given below. A student who remits, in advance, a payment of tuition and fees and does not subsequently register will be given full refund of tuition, General Fee, Health Fee, Campus Center Fee and Library Fee.



If a student officially withdraws after the first day of class of the fall semester, all fees are forfeited and tuition is refunded in accordance with the refund schedule. The Orientation Fee is not refundable except in special circumstances approved by the orientation counselor. All refunds are based on official withdrawal notices as dated and processed by the Registrar's Office.

#### Refund Schedule for Tuition

Within the first two weeks from the beginning of the semester	90%
During the third through sixth week	60%
After the sixth week	No Refund

#### Summary of Annual Expenses (Exclusive of Room and Board)

Massachusetts Residents	Undergraduates	Graduates
Tuition	\$ 939.00	\$1,034.00
Health Fees	15.00	15.00
Mass. PIRG Fee	6.00	6.00
General Fee	80.00	80.00
Campus Center Fee	50.00	50.00
Library Fee	30.00	30.00
Orientation Fee (new students)	29.00	29.00
Books and Supplies	300.00	300.00
Total	\$1,449.00	\$1,544.00
Non-Massachusetts Residents		
Tuition	\$3,090.00	\$3,176.00
Health Fee	15.00	15.00
Mass. PIRG Fee	6.00	6.00
General Fee	80.00	80.00
Campus Center Fee	50.00	50.00
Library Fee	30.00	30.00
Orientation Fee (new students)	29.00	29.00
Books and supplies	300.00	300.00
Total	\$3,600.00	\$3,686.00

Lab Fees of \$10.00 are assessed to some students if they are registered in an applicable course.

All expenses are subject to change at the discretion of the Board of Regents and/or the University. Notification however will occur if, and when, any such changes are approved by the SMU Board of Trustees and/or the Board of Regents.

#### Student Services

The function of those offices which comprise the Division of Student Services is to assist students in gaining maximum educational benefit from their college experience. These offices accomplish this function by providing a total program of assistance designed to meet the basic needs of students and to create learning experiences which encourage self-understanding and self-direction.

#### Dean of Students

The Dean of Students directs and supervises all of the activities of the Division of Student Services in order that they effectively meet the broad educational goals of the University and the individual needs of students. In the administration of the Division, the Dean is assisted by an Associate Dean of Students who also coordinates experiential learning programs designed to enhance the self-direction of students.

#### Student Life Office

The Student Life Office is staffed by two Associate Deans of Students whose functions are to serve in effect as University Ombudsmen, rendering assistance to all students in matters of personal and social needs. The general purpose of this office is to improve the quality of campus life by providing direct help to student groups and organizations. In addition

to the Associate Deans this office includes the Administrative and Programming staffs of the Campus Center and Residence Halls as well as the University Chaplains.

#### **University Counseling Center**

The Counseling Center is concerned with the intellectual, social and emotional growth of students. It assists the student in developing interpersonal relationships, clarifying values, managing emotions, making choices and developing the capacity for true human intimacy. It offers a broad spectrum of counseling and psychological services to achieve these developmental objectives. One way in which the Counseling Center facilitates student growth is through individual counseling, which is essentially the process of clarifying a situation, understanding the alternatives and choosing a solution. Many concerns are appropriate for counseling; the service is not limited to helping only those individuals experiencing emotional stress. Some students seek out information about academic requirements and the resources of the University. Some wish to talk about choosing a major, graduate school plans and career opportunities. Others are experiencing difficulty with study skills and anxiety with regard to exams. Many come to talk about their relationships with others, or to talk about themselves and their hopes, fears, identity, self-confidence and doubts.

The Counseling staff offers workshops to assist participants in determining where they are going in life, instead of just letting events take their course. Many workshops help in dealing with very specific problems common to students: time management, test anxiety, leadership training, values clarification, self-assessment, decision making, assertiveness training and human sexuality.

Comprehensive services of the Counseling Center include interest and personality testing, vocational testing offered in conjunction with the Career Planning and Placement Office, an Educational Information Library (graduate, law, business, medical, technical and undergraduate transfer programs and admissions data). A consulting psychiatrist is available for evaluations, medications and referrals. Staff consultations and paraprofessional training are provided for various student clubs, organizations and services.

All counseling is strictly confidential and is provided at no charge by professionally trained counselors and psychologists and is not a part of the University record system.

#### **Student Advisor Program (SAP)**

The Student Advisor Program (SAP) is an organization of selected and trained students who are concerned with the academic and social advisement needs of fellow students. Through a student-run drop-in center on the second floor of the Campus

Center, student advisors provide easily accessible academic information, an opportunity for students to express their concerns about their SMU experience, and opportunities to learn about the University's resources. Student advisors also work to meet campus needs through their involvement with orientation and housing.

Student advisors receive training in SMU resources and in helping skills. They have an opportunity to become actively involved in the life of their University. Members of the Counseling Center staff assist in the training of student advisors and act as consultants to SAP.

#### **University Health Services**

The Director of Health Services is responsible for all matters pertaining to student health and health education. An outpatient Health Office available to all SMU students (on campus and off campus) is located in the Residence Halls, Phase III-A, Ground Level.

A nurse, a nurse practitioner, and a physician are on duty at various times on most academic days.

Gynecology and dermatology services are also provided on an appointment basis.

The Health Office is equipped to handle all cases in need of minor health and first aid treatment. Serious cases and accidents are referred to local hospitals.

#### **Office of University Records (Registrar)**

The Director of University Records maintains the official records of all graduate and undergraduate students. Office personnel ensure that records are accurately reported and are otherwise in good order. The Office conducts registration, arranges schedules of classes and examinations, enforces certain academic regulations and issues official transcripts from the University. Petitions to receive credit toward the SMU degree for courses which have been taken elsewhere must be filed with the Registrar. The Registrar also certifies enrollment to the Social Security Administration and the United States Immigration Service.

#### **Confidentiality of Records**

The University annually informs students through the Student Handbook of its policy on the confidentiality of records. The policy is consistent with guidelines developed by the Governor's Commission on Privacy and Personal Data and with the Family Educational Rights and Privacy Act of 1974.

The policy is designed to protect the privacy of education records, to establish the right of students to inspect and review their education records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office (FERPA) concerning alleged failures by the University to comply with the Act.



Detailed procedures pertaining to student access and confidentiality of records are available from the Office of the Dean of Students. The office also maintains a directory which lists all education records maintained on students at the University.

The University has designated the following categories of student information as public or directory information: student's name, school or college, major field of study, dates of attendance, and degrees and awards received. Such information may be disclosed by the University for any purpose, at its discretion.

Currently enrolled students may withhold disclosure of any of the above categories of information. To withhold disclosure, written requests by students must be submitted to the Registrar's Office on an annual basis. The University assumes that failure on the part of any student to request the withholding of public information indicates individual approval for disclosure.

#### **Veterans' Affairs Office**

The programs at SMU are approved for any benefit that may still be available under the GI Bills. Students who are eligible for benefits should obtain an application from their regional Veterans Administration Office or the Office of Veterans' Affairs on campus. The Veterans Administration will issue a Certificate of Eligibility, which should be presented to the Office of Veterans' Affairs for certification of enrollment. It is the veteran student's responsibility to notify the Office of Veterans' Affairs of any change in course credit load.

In the Commonwealth, the definition of "Vietnam Veteran" for the purpose of State tuition exemption is as follows:

A veteran is eligible if:

1. He/she has performed wartime service in the Armed Forces

(a) during the period beginning August 5, 1964, and ending May 7, 1975, or

(b) for at least 180 days of active service during the period between February 1, 1955, and August 4, 1964 (Anyone having a service-connected disability need not have served 180 days.)

2. His/her service in the U.S. Armed Forces was credited to the Commonwealth of Massachusetts.

3. He/she is deemed qualified to attend a State institution of higher education in the Commonwealth.

For further particulars, contact the Office of Veterans' Affairs.

#### **Financial Aid Office**

Financial assistance is available at SMU to a large number of students. This assistance, in the form of employment, loans, grants, and scholarships, enables students to continue their education in spite of limited personal resources. These programs are a vital supplement to a student's personal resources. With the costs of higher education continually increasing, many students could not attend college without such assistance.

SMU is a member of the College Scholarship Service (CSS) of the College Board.

Members of CSS subscribe to the principle that a student's parents and/or spouse are expected to contribute toward educational costs according to their means, taking into account their income, assets, number of dependents, and other relevant information. Students themselves are expected to contribute from their own assets and earnings, including appropriate borrowing against future earnings. Financial assistance is considered to be supplemental to the resources expected from the student and the parents and/or spouse. The amount of aid offered is normally intended to provide a reasonable balance between student self-help resources (employment, loans, student contributions, etc.) and gift resources (grants, scholarships, stipends, parent contributions, etc.). The application file is evaluated for the determination of demonstrated financial need in accordance with Federal guidelines, as well as SMU and College Scholarship Service (CSS) policies and procedures.

A student is considered to be in good standing and maintaining satisfactory progress in his course of study, as required to receive Federal financial aid, if he is eligible to continue as a student at the University. It is expected that this definition will be reconsidered in the future.

Financial aid application procedures and requirements are rather complicated. Applicants who wish to talk with someone regarding their financial situation related to attendance at the University should contact the Financial Aid Office.

#### **Office of Career Planning and Placement**

This office provides career counseling for all students and placement services for seniors seeking positions in their chosen fields.

On-campus interviews are arranged with industries, businesses, government agencies and school departments. Seniors are assisted in the preparation of their placement files which include resumes, references and evaluations. Workshops are held on interviewing and job hunting techniques.

The office also assists students with their career planning through counseling and keeps them informed of the job market and trends in hiring. Group seminars and individual sessions are held to aid undergraduates in this area. The office has a career information library which may be used by anyone. Vocational interest tests are given upon request.

All part-time and summertime employment is handled by the Office of Career Planning and Placement. Any student may register and make use of these services. The office also assists Alumni seeking positions or job changes. There is no fee for these services.

#### **Athletics**

SMU has a varied and well-rounded athletic program. Opportunities for participation are available for men and women in recreational, instructional, intramural and intercollegiate sports.

Instructional classes in a wide range of subjects are offered on an elective, non-credit basis to all interested students. A complete Intramural program is available to provide an opportunity for all students to participate in athletic activities. Team sports as well as individual tournaments are popular activities for a large number of SMU students.

SMU has varsity inter-collegiate programs for men and women in nineteen sports. Men's teams are fielded in baseball, basketball, cross country, fencing, golf, ice hockey, soccer, swimming and diving, tennis and track. SMU, a member of the NCAA, ECAC and NECAC, competes against colleges and universities of comparative size from throughout the New England area.

Women compete in the following intercollegiate sports: cross country, basketball, fencing, field hockey, swimming and diving, softball, tennis, track and volleyball. SMU is a member of the AIAW, EAIW and MAIAW.

Additional information about these services is published annually in the University Student Handbook.

#### **Co-Curricular Activities**

SMU seeks to promote and foster co-curricular activities as an integral part of college life. It recognizes the value of these activities as a necessary complement to each student's academic work. Participation in out-of-class activities serves to develop greater skills of individual responsibility, leadership, and initiative.

#### **Student Government**

Student Government functions on the SMU campus through the Student Senate and represents all students by popular election. Students are encouraged to participate actively in student government and to vote in all student elections. The Student Senate must approve the formation of new organizations. This body is the voice of the students in school affairs as members are appointed by the President of the Senate to serve on various faculty and administrative committees.

#### **Student Judiciary**

The Student Judiciary is a system of courts or judicial agencies that provides the protection of due process to any student or student organization at SMU charged with an action calling for discipline.

There are four ascending levels of student judicial authority:

- **Residence Hall Judiciary**
- **Court of General Affairs.** The court has jurisdiction over lesser student infractions and is an appeal body for the Residence Hall Judiciary.
- **University Court** which is the final appellate body on all cases not involving suspension, dismissal or assessment of grade penalty in matters of academic dishonesty. It has jurisdiction over cases of all-University significance; academic rights and freedoms; violation or interpretation of Student Government Constitution or policies of Student Senate and the

constitutionality of its actions. It is the first court where a judgment of dismissal or suspension from the University can be handed down.

- **The University Discipline Board** is the final appeal agency on all penalties of suspension or dismissal. These penalties include special cases of discipline arising from extraordinary or emergency conditions and cases involving a student appeal of a failing grade given on the basis of a charge of academic dishonesty made by a department or a college and upheld by the University Court.

The student role in the Judiciary is a powerful one. Numerically, they are the largest segment of any with the one exception of the University Discipline Board where they are equal with the faculty. All courts on the lower levels are completely staffed by students. The University Court has five students, one of whom is the Chief Justice; four faculty and two administrators. The University Discipline Board has four students, four faculty and one administrator (Dean of Students who votes only in the case of a tie).

The authority of these judicial agencies is complete. Only the Board of Trustees can rescind that authority.

#### **Student Conduct and Organizations**

Information on student conduct and organizations is published on an annual basis in the Student Handbook.

#### **Library**

The Library/Communications Center supports and supplements all programs of instruction and research with a growing collection of books, periodicals, maps and other materials.

In addition to a book collection numbering in excess of 265,000 volumes, the Library subscribes to 1900 serial titles. It has a growing collection of microform material and an extensive slide collection. The Library is also a depository for U.S. Government Documents. The resources of the library are available on open shelves. Most material circulates with the exception of journals and reference. SMU Library is a consortium member of SMCL: Southeastern Massachusetts Cooperating Libraries and also the SACHEM libraries group. Through membership in these consortia, SMU students have access to the resources of participating libraries.

#### **Computer Services**

The Computer Center provides instructional, research and administrative computing services to the University community.

A DECSYSTEM-20 supplies timesharing service to many simultaneous users via terminals located in the Academic Computer Services area of the Library/Communications Center and in many departmental locations throughout the University. The system supports programming in many languages, such as APL, BASIC, COBOL, FORTRAN, PASCAL and assembler language. Also available is a library of application programs to assist



in using the system as an aid to learning business, engineering, social science, and other subjects. All students at SMU have access to these computer services.

Courses in computer programming are offered by several departments at the University. The Academic Computer Services staff conducts clinics, seminars, and workshops to assist the academic community in its use of computer facilities.

#### **Instructional media**

Instructional Media is located in the Library Communications Center, and is comprised of Audio Visual and Television Departments.

The Audio Visual Department functions as a service agency to the students, faculty and staff. The Media Services area provides facilities and software for the educational benefit of all members of the University.

Various types of non-print media such as 16mm films, pre-recorded slide packages and audio tapes are available for student use.

Equipment for viewing and listening to the above media may also be used for class projects. Forty-eight-hour notice is requested when scheduling equipment in order to insure its availability. In addition, a record collection of 2,800 is located in the Listening Room. Students should feel free to use the listening facilities on a space-available basis. Records, at this time, do not circulate except with faculty permission.

A large collection of Nursing Media Materials is located at the Circulation Desk in the gallery area of the first floor in the Library. Specialized projection equipment is available to be used in conjunction with this material.

Another service provided by the Media Services area is the A/V Resource Center. This facility is responsible for scheduling and playbacks of video tapes and films from the department's collection. Television monitors are located in the library carrels near the A/V Desk, in various classrooms, and in other areas.

Any art work relative to classroom presentations can be done through the Graphics Center located behind Studio One in the basement of the Library. The center also includes a Photography Department with dark rooms for both color slide and black and white print production.

Video tapes are produced by Television Services in cooperation with SMU students, faculty and staff for course assignments, faculty presentations and special programming.

**Cooperative Learning Center**  
The Cooperative Learning Center is an academic support service which provides peer tutoring and small group review sessions free of charge for all SMU students. The area centers of the CLC are:  
Writing  
Reading  
Science  
Mathematics  
Handicapped Services

Students needing help with any other SMU course will be provided with a qualified, trained tutor with a background in both the course and the relevant subject matter.

In addition, the CLC offers special services in the following areas:  
academic advising  
research and term paper writing  
resume writing  
career advising  
study skills workshops  
workshops to improve reading speed and comprehension  
library skills workshops  
individualized services for handicapped students  
conventional English language study sessions

#### **Office of Handicapped Services**

The Office of Handicapped Services, a part of the Cooperative Learning Center, is a support organization helping students who are handicapped to pursue their educational goals while adjusting fully to their new environment. The OHS provides the following services on an individual basis:  
mobility assistance  
note taking  
peer counseling  
advocacy

Helping with academic procedures such as orientation, financial aid, residence hall arrangements and placement, the office plugs into all university resources giving an added dimension to these services.

Beyond satisfying immediate needs, workshops are held regularly, addressing issues of sensitivity and awareness within the University; monthly meetings are held for caring individuals to share in the problems of students with disabilities as both able-bodied and disabled students blend together to educate one another.

#### **College Now Program**

From the moment of admission to graduation, students enrolled at SMU through College Now are provided with all essential supportive services. Entering freshmen and upperclassmen receive assistance and guidance in developing and sharpening those academic skills which are vital to success at the University. The College Now program seeks to overcome the barriers which have separated underfill-prepared students from a college education by accepting the individual wherever he/she may be on the academic skill level, and helping to improve his/her role through education.

#### **Start**

The Steps to Abstract Reasoning and Thinking program provides freshmen who are inadequately prepared for college-level technical programs with a full year's intensive study to furnish them with the fundamental cognitive and mathematical skills and a core of scientific knowledge necessary for success in any of the scientific and technical programs at SMU.

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## Student Support Services and Facilities

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### Athletic Facilities

Twenty acres of beautifully landscaped playing area comprise the outdoor athletic facilities at SMU.

Included in this area are: thirteen championship plexi-pave tennis courts, two softball fields, four practice fields, two major league baseball diamonds, two soccer fields, an all-weather 400-meter track, field hockey area and archery range. The Francis Tripp Athletic Center comprises a gymnasium-natorium which houses locker rooms, showers, equipment rooms, first aid areas, faculty and staff rooms, offices and a classroom.

The huge expanse of the gymnasium provides for three adjoining basketball courts. Each court may be individually separated by coil doors. Forty-six rows of electrically powered bleachers quickly turn the gymnasium into a facility accommodating 3,000 spectators.

The Natatorium includes a 75' x 44' swimming pool and a separate 35' x 44' diving pool. The diving pool is furnished with two one-meter boards and one three-meter diving board. Balcony seating in the Natatorium can comfortably hold 500 people.

### Campus Center

The SMU Campus Center serves as the home for many student organizations, student government and university services such as the Campus Shop, University Dining Service, Games Area, Information Desk, Television Lounges, SMU Radio Station, Student Offices, and a full commercial branch bank.

The Center is a hub for all members of the university community: students, faculty, staff, administration, alumni, and guests. It is not just a building; it is also an organization and a program. The Center offers an opportunity to all members of the university community to interact by providing educational, social, cultural and recreational programs. The major emphasis of the programs is directed toward student involvement, as the extra-curricular activities of students have long been recognized as a valuable resource and a cooperative factor in the total educational experience.

The Campus Center Staff along with the Board of Governors is responsible for the administration of the Campus Center as well as the setting of guidelines and running of programs in the Center.

Any inquiries concerning reservations, policies, hours of operation, or programs should be directed to the Campus Center Office.

### Dining Services

The University provides a variety of dining services for the campus community administered by the Division of Auxiliary Services.

Located in the Campus Center are a cash cafeteria, snack bar and a-la-carte table service in the Sunset Room. In addition to variety menus and daily specials in these regular facilities, the South Alcove and Sunset Room provide rooms which may be reserved for special functions.

Resident students have a dining hall of their own adjacent to the Campus Center where they participate in a Fifteen, Nineteen, or Flexible Fifteen meal-a-week program as part of their residency contracts.

Catering services for special events are available through arrangements with the Scheduling and Functions Clerk in the Housing-Dining Office. Automatic vending machines are conveniently located in several areas for incidental and off-hour needs.

A rathskeller is located in the Resident Dining Hall.

Altogether, these dining facilities provide campus service seven days a week while the University is in session.

### Residence Halls

The residence units at SMU are designed around a "family suite". Each suite consists of five or six double sleep-study rooms, bathroom facilities, and a family living room with a small kitchen. The Halls include lounge, reception, recreational, multi-purpose, and study rooms. Each house within the residence complex is coeducational; suites are not.

The Office of Housing and Residential Life is in charge of room assignments, billings, and general building repair. With the assistance of the Head Residents and Resident Assistants, and the Residence Halls Congress, this office works towards developing educational, cultural, social and recreational activities.

### Child Care Center

A Child Care Center is available on campus for children of all students, staff and faculty. Children between the ages of 2 years 9 months and 6 years may be enrolled. The Center is open from 7:30 A.M. to 4:30 P.M. and follows the University calendar. Current information on policies and rates may be obtained from the Teacher-Director.

### Use of Facilities

Regulations regarding use of University facilities, equipment and grounds are available from the Campus Scheduling Functions Office.

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## Academic regulations

### Coursework

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#### Course Credits

The basic units of teaching at SMU are courses. A course is a segment of an academic or professional field which provides insight and understanding of those topics, skills, and approaches to knowledge which are determined by the University to be important to students' educational development, personal growth, and/or career preparation.

Each course at SMU carries the number of credit hours specified in the course description. Courses ordinarily meet three hours per week in each semester. There is, however, a wide range of course and credit arrangements including one-credit laboratory and 15-credit practice teaching courses available at SMU.



## Course Load

### A. Minimum:

With the exception of graduating seniors in their final semester, no undergraduate full-time degree candidate may register for fewer than nine course credits without the approval of the appropriate academic dean.

### B. Maximum:

No undergraduate degree candidate may register for more than 18 credits in a semester without the approval of the appropriate academic dean. A student may accumulate a maximum of 30 credits in excess of degree requirements.

### Course Level and Number System

Courses are listed by number and title. Courses are numbered according to the following system:

- A. 100-level — introductory courses
- B. 200-level — intermediate courses
- C. 300-400-level — advanced and specialized courses — courses normally requiring prerequisites including seminars, honors, practica, theses, and independent study.
- D. 500-600-level — graduate level — Open to undergraduates only with the permission of the instructor.

### Transfer of Credit

Requests to receive credit for courses taken at other institutions prior to admission should be filed with the Admissions Office and approved by the Dean of the appropriate College or a designee. Such requests must be accompanied by official transcripts and such other documents as required by the Dean of the appropriate

college. Transfer credits will be limited for students from two-year institutions to a maximum of one-half of the number for the SMU program. Credits applicable to a specific degree program should be so indicated by the Department. Students entering with degrees from Massachusetts community colleges will be awarded credit according to the Transfer Compact.

A student registered at SMU who wishes to enroll in courses in another college for transfer credit to SMU should have such courses approved in advance by the appropriate Department Chairperson and College Dean in order to insure the transferability of such credits. On completion of these courses, an official transcript should be forwarded to the Registrar. A "C-" grade is the minimum acceptable grade for receiving transfer credit at SMU. Transfer coursework for which credit is given will be recorded on the student's permanent record card without a grade designation. It will not be calculated in the student's grade point average.

### Waiver of Courses

If students demonstrate proficiency in areas that are part of their degree program of study and have the approval of the faculty specializing in that area, they may petition through the Department Chairperson to the Dean of the appropriate College to have the course(s) for which the proficiency is proven (by examination, portfolio review, successful completion of a previous program of studies for which credit may not have been received, etc.) waived as a requirement for the fulfill-

ment of their degrees. When a course is waived as a degree requirement, the student is still responsible for the successful completion of a number of credits equal to those assigned to the waived course. Usually, the credits can be earned as free electives, although in some instances it may be necessary for students to complete a specified substitute course to successfully complete their program of studies.

### Repeating of Courses

Students may repeat individual courses once but only as space is available and if they have the consent of their department Chairperson and their advisors. Only the repeat course grade shall enter into calculation of the cumulative grade point average presented for satisfaction of a particular degree requirement. However, all courses attempted by a student will be part of the permanent record.

### Registration

Registration is the process by which students enroll in courses each semester. Returning students are responsible for registering during the established registration period. New and transfer students register according to the most recent instruction from the Office of University Records. Registration will not be considered effective until all financial obligations to SMU are met.

## Enrollment

### Add/Drop

Up to the end of the first week (five class days) of the semester, a student may officially add courses or drop courses without record. In the case of courses that meet only once a week, the Add/Drop period shall be two weeks. No one shall enroll for Contract Learning, Independent Study, and Honors Theses credits after the second week (ten class days) of the semester without the permission of the appropriate Dean or his/her designee.

### Withdrawal from Courses

1. A student who withdraws from a course after the Add/Drop period and up to the completion of the seventh week of the semester shall receive a W grade. A W grade does not affect a student's GPA.
2. Applies to all students who begin their academic work in fall semester 1981. After the completion of the seventh week of the semester, a student who withdraws from a course shall receive a grade of WF or WP as appropriate. More than 24 credits of W, WP, or WF makes the student subject to dismissal from the University through the action of the Dean of the student's College. Grades of WP and WF do not affect a student's GPA.
3. A student who does not complete all course requirements shall receive an I or an appropriate grade. If the notation is an I, an appropriate grade will be assigned on completion of the missing work. If the student does not complete the course requirements within twelve months from the recording of the "I", the I notation will be converted to an F(I).

## Degree Requirements

### Degrees and Majors

SMU offers the degrees of Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science. Each degree requires being accepted into and fulfilling the requirements of a major. By being accepted into and fulfilling the requirements of two majors, a student may graduate with one degree and a *dual* major.

### Distribution

SMU also requires students to complete general distribution requirements according to the degree sought. These distribution requirements vary among Colleges and majors and with year of graduation. For degree requirements for the year in which the student expects to graduate, (s)he should consult with the major Department.

Additional graduation degree requirements are:

1. The satisfactory completion of all work required in the student's major field of concentration.

2. Applies to all students who begin academic work in fall semester 1982:

A cumulative grade point average of not less than 2.0 for all credits submitted for the degree. In addition, the cumulative grade point average for courses taken in the major shall be set by the department at not less than 2.0. A student may take additional credits not submitted for the degree.

3. The satisfactory completion of 60 course credits at SMU. It is expected that students will spend their junior and senior years at SMU. Students may be granted permission by the appropriate chairperson and the college dean to earn up to 30 credits at another institution during their junior and senior years.

4. The satisfactory completion of at least 30 course credits in advanced and specialized courses at or under the sponsorship of SMU.

### Departmental Requirements

An academic Department, with the approval of the Dean of its College, may establish academic requirements more restrictive than or in addition to University requirements.

## Academic Advising

1) Each degree candidate will be assigned a faculty advisor.

2) Students who have declared a major will be assigned an advisor within their major.

3) It is the responsibility of each Department Chairperson to establish annually the faculty advising program for majors in the department.

4) The Dean of the appropriate College will be responsible for coordinating the assignment of faculty advisors to students who have not declared a major.

5) The student is responsible for contacting the advisor periodically; at least once each semester prior to registration. The advisor shall make an effort to be available to advisees.

6) The advisor will, at that time, inform each advisee of distribution and major academic requirements. The student, not the advisor, is responsible for seeing that his/her program fulfills any and all requirements for the degree. The advisor will also discuss related educational concerns, such as graduate schools and job opportunities.

7) The advisor will receive a copy of the student's grades following each semester.

8) Any student who falls below a 2.5 grade point average must get the advisor's signature for the next registration.

9) The advisor can call a conference with the student at any time, with reasonable notice.

10) Any college or department may formulate additional advising procedures for its majors.

### Grades and Grading System

Grades are determined and assigned by instructors according to the guidelines indicated below. Each student's academic achievement and fulfillment of degree requirements are reflected in the transcripts which are issued at the end of each semester.

The SMU grading system includes plus and minus grades which are used in computing grade point averages.

The grading system includes the following letter grades and quality points:

	Quality Points
A	A+ ..... 4.0
Excellent	A- ..... 4.0
	A— ..... 3.7

	Quality Points
B	B+ ..... 3.3
Good	B ..... 3.0
	B— ..... 2.7

	Quality Points
C	C+ ..... 2.3
Satisfactory	C ..... 2.0
	C— ..... 1.7

	Quality Points
D	D+ ..... 1.3
Marginal	D ..... 1.0
	D— ..... 0.7

D— is the lowest grade acceptable for credit.

F  
Unsatisfactory  
0 Quality Points

Failure to meet minimum standards either on the basis of work submitted or not submitted. No credit awarded. 0 quality points awarded for purpose of computing G.P.A. Credits as indicated in course description.



**F(I)****0 Quality Points**

An F assigned for failure to complete a course within a year after the assignment of an I notation.

**W**

A student who withdraws from a course after the Add/Drop period, and up to the completion of seventh week of the semester shall receive a W grade. A W grade does not affect a student's GPA.

**WP**

Official withdrawal by the student while passing after the completion of the seventh week of the semester. No credit awarded. Not included in grade point average.

**WF**

Official withdrawal by the student while failing after the completion of the seventh week of the semester. No credit awarded. Not included in grade point average.

**CR**

A passing grade. Credit given upon satisfactory completion of a contract under Contract Learning Program. Not included in grade point average. This grade may also be assigned as a passing grade under grade appeal procedure.

**NC****0 Quality Points**

A failing grade. Under Contract Learning Program no credit awarded. For purposes of computing G.P.A.: Credits as agreed upon by contract.

Work Incomplete. Given only when the Instructor thinks that the student will complete the course within a year from the recording of the "I". Can be changed only to a letter grade, not a WF or WP.

Changes to F (I) if work not completed within a year of recording of the "I".

**P**

Under Pass/Fail option. See A, B, C, D, definitions above. If any apply, P grade obtains. Not figured in grade point average.

**IP**

In Progress. Notation used in special cases to indicate that academic progress covers more than one term; e.g., that a grade will be assigned on the completion of the task involved. The "IP" notation is replaced upon receipt of the official grade. If, at graduation, the "IP" notation is still in effect the grade of "NC" will be entered in its place.

**NR**

Grade not reported by instructor at time of grade processing.

**F**

Under pass/fail option. See "F" definition above. No credit awarded. 0 quality points awarded, for purposes of computing G.P.A. Credits as indicated in course description.

**AU**

Audit. Registration and permission of Instructor needed for auditing. This notation is used when no examinations, evaluation, or credit are involved.

**Pass/Fail Option**

Sophomores, Juniors, and Seniors may select a Pass/Fail Option for one course per semester (up to maximum of four courses) under the following regulations:

It shall be open in all courses except:

1. any course specified as a degree requirement;
2. any course in a student's major, unless his or her Department rules otherwise;
3. any course used to satisfy the distribution requirements of the degree program in which the student is enrolled.

**Selection of Pass/Fail Option**

Students will be given through Add/Drop period to exercise the option, which shall then be irrevocable. Only the student and the Registrar shall know that an option has been selected. Grading practice, vis-a-vis faculty and students, will be identical to the usual marking procedure.

The burden of selecting a proper course under Pass/Fail rules shall be borne by the student. Any doubt shall be resolved by consultation with the Dean of the College in which he or she is enrolled. If the student elects a course for which he or she is not eligible under the Pass/Fail Option, he or she will be subject to the usual marking practices.

Grading practices under this option are as follows:

1. A Pass/Fail student who does passing (i.e., A through D-) work in a course shall be given a grade of P (Pass). Passing a course shall earn a student graduation credits but shall not be counted in his or her cumulative average. Failure in a course will be 0 quality points and will be counted in the G.P.A.
2. The Registrar shall be required to keep a separate record of the grades obtained in the Pass/Fail courses and will issue this record only on the request of the student.
3. The transcripts will contain the Pass/Fail notation, but the grade actually achieved will be kept on file in the Registrar's Office.

**Scholastic Standing**

A grade point average (G.P.A.) is determined for each student at the end of each term's program of courses. A G.P.A. is computed by multiplying the credit of each SMU course by the quality points of grade received in that course. The sum of the above is then divided by the total number of credits in courses in which the student was enrolled. Grades of P, CR, I, W, IP, AU are not included.

A cumulative grade point average is the computed average of all the SMU grades other than grades of P, CR, I, W, IP, AU, of the student. Grades of F, F(I), and NC earn zero quality points. Such grades are included in the student's cumulative average according to the number of credits specified in the course description.



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## Academic Standing

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Whether a one or two semester course, the grade received at the end of each semester stands as the final grade for the semester. For certain special coursework (honors, research programs, etc.) in which it is extremely difficult to assess academic programs on the basis of one term, the notation "IP" (In progress) is acceptable on an interim basis. The "IP" notation is replaced upon receipt of the official grade.

The Statute of Limitations on all grade change requests is one year from the date that the grade was placed on the student's record. In extreme and exceptional cases, on request of the student and recommendation of faculty, the instructor, and/or the appropriate college dean may authorize changes in grades which are over one year old as of the date the grade was placed on the student's record.

### Class Standing

#### Freshman

Up to and including 30 SMU earned/awarded credits or  $\frac{1}{4}$  of graduation credit requirements in the student's degree program.

#### Sophomore

From 31 to 59 SMU earned/awarded credits or  $\frac{1}{2}$  of graduation credit requirements in the student's degree program.

#### Junior

From 60 to 89 SMU earned/awarded credits or  $\frac{3}{4}$  of graduation credit requirements in the student's degree program.

#### Senior

More than 89 SMU earned/awarded credits.

#### Special Students

Special students are those who are not degree candidates. Courses taken for credit and satisfactorily completed will be counted toward a degree only upon the acceptance of the student into a degree program.

No more than 30 credits can be gained toward a degree as a special student.

#### Dean's List

Following the completion of each semester, the Registrar submits to the Academic Deans a "Dean's List" consisting of the names of those students whose academic record for the previous semester is of high quality.

To be eligible for the dean's list a student must achieve a grade point average of at least 3.2 or higher for the semester in a minimum of 12 course credits excluding courses taken under the Pass-Fail option and Contract Learning.

#### Graduation with Distinction

1. Students with 90 or more SMU credits are eligible for graduation with distinction provided they achieve a cumulative grade point average of:  
3.200 to 3.499 Distinction  
3.500 to 3.799 High  
Distinction  
3.800 to 4.000 Highest  
Distinction
2. Students with 60 to 89 SMU course credits are eligible for graduation with distinction provided they achieve a cumulative grade point average of:  
3.400 to 3.699 Distinction  
3.700 to 3.899 High  
Distinction  
3.900 to 4.000 Highest  
Distinction
3. Students with fewer than 60 SMU course credits are not eligible for graduation with distinction.

Graduation with "Distinction", with "High Distinction", or with "Highest Distinction" is inscribed on the student's diploma. Graduation with distinction is based on all SMU work including the final semester.

#### Departmental Honors

Several Departments allow qualified students to subscribe to programs leading to Honors in the major field. Students satisfactorily completing the departmental requirements for Honors in the Major will, upon graduation, have their diplomas so inscribed and be so designated on the Graduation programs.

#### Academic Probation

Any student having a cumulative grade point average below 2.0 after the completion of 30 credits will be placed on academic probation and will be so notified by an appropriate notation on the student's transcript. The purpose of academic probation is to alert the student to the possibility of academic dismissal as described in the section below. It will be the student's responsibility to take remedial action after this warning.

#### Academic Dismissal —

Applies to all students who begin academic work in fall 1981

A student shall be dismissed for unsatisfactory academic performance. An "unsatisfactory academic performance" is one in which a student's cumulative grade point average falls below the following standards:

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**Extracurricular Participation**

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**Academic Standards**

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SMU Awarded Credits*	Cumulative G.P.A. Requirements
20	1.350
25	1.400
30	1.450
35	1.500
40	1.550
45	1.600
50	1.650
55	1.700
60	1.750
65	1.775
70	1.800
75	1.825
80	1.850
85	1.875
90	1.900

\*Includes all transfer credits, CLEP credits, prior learning credits, and all SMU attempted credits. SMU attempted credits are those for which a grade has been entered, excluding those for which the notation is W, I, AU, IP and NR. SMU attempted credits are so designated on the SMU transcript. Transfer credits, CLEP credits and prior learning credits appear in the SMU transcript as the total under "transfer credits."

At the time of dismissal the conditions of readmission shall be stipulated by the appropriate College Dean in consultation with the Department Chairperson. No student will be dismissed after only one semester at S.M.U., or prior to having attempted at least 20 SMU credits.

**University**

Students who are not degree candidates or who have been placed on academic probation are not allowed to serve on University Committees, Student Government Organizations, or to represent the University in Intercollegiate Athletics.

**Athletic**

The director of athletics may recommend to the council of Academic Deans academic requirements more restrictive than or in addition to University requirements if such changes are necessary for membership in intercollegiate associations.

**Student Organizations**

A student group which governs a particular student activity, with the approval of the Dean of Students, may require academic performance of its student members which is greater than that which is required by the University for remaining in good standing.

**Academic Dishonesty**

A student found guilty of academic dishonesty is subject to severe disciplinary action which may include expulsion from the University. Refer to Student Handbook for due process.

**Plagiarism**

All students entering SMU are expected to maintain high standards of academic integrity and scholarly practice. Plagiarism, whether as a result of failure to understand proper scholarly procedure or as an act of intentional dishonesty, is not allowed.

Plagiarism is defined as: An attempt by a student to represent the work of another as his/her own. This includes copying the answers of another student in an examination; submitting or copying or substantially restating the work of another person or persons in an oral or written work without citing the appropriate source; and collaborating with someone else in an academic endeavor without acknowledging that contribution.

Penalties assessed by the faculty member for plagiarism generally consist of a reprimand, a lowering of a grade or failure in the course in which the alleged plagiarism took place, a requirement to resubmit the work in a more acceptable form, or any combination of these.

An instructor, if s/he considers the offense especially serious, may, instead of assessing a penalty, refer the matter to the SMU Student Judiciary. When a student is penalized for plagiarism, it shall be understood by all parties concerned that the student has the right to appeal the instructor's decision to the University Court.

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## Student Status

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### Change of Academic Major or College

Requests for change of Academic Major or College must be approved by the Department Chairpersons involved and the Dean of the College to which the student is transferring.

### Leave of Absence

A student may request of the appropriate College Dean a leave of absence for a period no longer than two calendar years. Students on leave of absence may return within the stipulated period by writing to the College Dean at least 4 weeks prior to the first day of classes in the semester of return. The College Dean may specify an earlier notification deadline in limited enrollment programs. Students who are on leaves of absence who exceed their stipulated time on leave will be considered to have withdrawn.

### Withdrawal

A student who wishes to withdraw from SMU must file a Withdrawal Notice Form with the Registrar, who will inform the Dean of the student's College. Failure to follow this procedure will jeopardize the student's re-admission. [A student who officially withdraws shall receive a W in each course. (See Grading System.)] If a student does not reenter the University in the following semester but plans to at some later time, he or she must apply for a leave of absence.

Veterans who withdraw are urged to consult the Coordinator of Veterans Affairs on Campus.

### Readmission Procedure

1. For students who are in good standing and who officially withdrew, readmission shall be by the Registrar, if there is no change of major and if space is available.

2. For students whose academic status was unsatisfactory\* or who had uncertain status\*\* or were making insufficient progress toward a degree when they withdrew; and for students who wish to return in a different major, readmission shall be by the College Dean.

3. For students who have graduated and wish to enroll for a second degree and for students who do not officially withdraw, the Admissions Office will readmit only after specific recommendations on such students are elicited by the Admissions Office from the appropriate College Dean.

\*Unsatisfactory refers to students on probation or academically dismissed.

\*\*Uncertain status refers to students with more than 25% "I" or "W" grades or similar situations in their records.

### Class Attendance

Students are expected to be present at all scheduled activities related to courses in which they are enrolled. Students are responsible for the course work and assignments missed by any absences. They must take the initiative in making up any work missed and finding out about any assignments made during their absence. Extended absences for medical or personal reasons should be reported to the Office of Student Life.

A class is considered cancelled if the instructor does not report within ten minutes from the beginning of the class period. Individual faculty members are responsible for informing student of any special attendance rules for that course and the penalties for violating them. Faculty members are solely responsible for the enforcement of these rules.

### Financial Obligations

Students or former students who are listed by the financial office as having unpaid debts for tuition, room, board, medical, Campus Shop balance, Library fines, loan balances, parking fines, or other university-related charges where said debts have not been discharged by

operation of law or where deferred payment of said debts has not been agreed to by the university will not (1) be issued any diploma to which said students might otherwise be entitled; (2) be permitted to register for any program at the university for which said students might otherwise be eligible; or, (3) be furnished a certified copy of a university transcript (unless in the United States armed forces) although said students will be entitled, upon written request, to inspect and review uncertified copies of their transcripts. Financial clearance must be obtained from the Bursar's Office.

### Requests for Transcripts

Students are entitled to three free transcripts of their college records. Additional transcripts will be prepared upon request at a charge of one dollar (\$1.00) each. When a single request is for more than one copy of a transcript, there will be a charge of one dollar (\$1.00) for the first and thirty-five cents (\$.35) for each additional copy. Requests for transcripts must be made in writing to the Registrar.

Students who expect to meet requirements for their degrees in May are required to file with the Registrar, by the previous January 1st, a notice of Graduation Eligibility. Appropriate forms will be available from the Registrar.



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## Grade Appeal

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### I. Basis for grade appeal

**A.** Only final course grades are subject to appeal.

**B.** For purposes of appeal a final course grade may be alleged to be:

1. unfair because of the unequal application of grading standards within the course resulting in a grade at least 1.3 quality points less than the grade the appellant maintains should have been given, or,
2. in error because of a clerical or computational error. In such cases the appeal is solely on the basis of the clerical or computational error with respect to the grade.

**C.** The responsibility for initiating an appeal rests with the student who received the disputed grade.

**D.** The responsibility for developing and presenting evidence that the grade given is unfair or in error rests with the student making the appeal.

### II. Procedures

**A.** Any student who feels that an unfair grade or a grade that is in error (as defined in I, B 1 and 2 above) has been given to him or her shall attempt to resolve the problem through informal discussion with the instructor prior to initiating the formal grade appeal procedure.

**B.** If the question of a disputed grade cannot be resolved through informal consultation between student and instructor, the student, if he/she wishes to make a formal appeal, must submit to the instructor in writing the evidentiary basis for the formal appeal. This must be done within the first 20 class days of the following semester, with a copy to the chairperson of the Department of the faculty member. In the case of a graduating senior, this must be done within 10 days of notification to the student by the Registrar of the final grade. The faculty member shall respond in writing to this formal appeal within ten class days of receipt of the appeal, or in the case of a graduating senior, within 10 calendar days.

**C.** If no resolution has been achieved within 10 class days of initiating a formal appeal, the student may then request in writing that the chairperson of the Department of the faculty member arrange a hearing before the Departmental Appeal Committee. The Departmental Appeal Committee shall set a date for hearing the evidence within 15 class days from the date of the request. (In the case of a graduating senior the date shall be within 15 calendar days.)

**D.** Evidence of clerical or mechanical error in the computation of the grade, if established by the preponderance of evidence to the satisfaction of the Departmental Appeal Committee, shall result in an automatic change to the clerically or computationally correct grade.

**E.** 1. If the student alleges that a grade is unfair, the student has the responsibility to establish by a preponderance of evidence to the satisfaction of the Departmental Appeal Committee that the grade is unfair because of the unequal application of grading standards within the course resulting in a grade at least 1.3 quality points less than the grade the student would have received had grading standards been applied within the course in a non-discriminatory manner.

2. If the grade is established as unfair the faculty member shall be asked to change the grade. If the faculty member is unwilling to change the grade in a way satisfactory to the student the grade shall be changed to the notation CR (a notation that gives credit for the course but has no effect on the student's cumulative average).

3. If the grade is not established as unfair the student's transcript shall show that the grade was appealed but not found unfair.

4. The Departmental Appeal Committee shall make decisions by majority vote.

**F.** The number of days indicated shall be considered as a maximum and every effort shall be made to expedite the process. However, the time limits specified may be extended by mutual agreement of the appellant and the faculty member against whom the appeal has been directed, or in the case of extenuating circumstances by his/her chairperson.

**G.** The hearing before the Departmental Appeal Committee shall be a closed session. The appellant and the faculty member against whom the appeal has been directed shall be given the opportunity to be present and to be heard. In addition to presenting material evidence, each party may present, examine and cross-examine witnesses.

**H.** Evidence purporting to show prejudice which might have motivated discriminatory treatment of the student may be presented but shall be regarded only as evidence of possible motivation and shall not be regarded as evidence that an unfair grade was, in fact, given to the student.

**I.** Decisions of the Departmental Appeal Committee shall be in writing and shall include supporting reasons. Copies of all decisions shall be given to both parties. The decisions of the Departmental Appeal Committee shall be final.

### III. Composition of Appeal Committee

A. The Departmental Appeal Committee will be selected when the need arises. It shall be composed of the Department Chairperson and two faculty members selected as follows:

1. the Department Chairperson shall prepare a list of six faculty members from the Department (in the case where there are not six uninvolved faculty members from the Department, faculty members from other Departments in the same Academic Council area shall be used to complete the list);
2. the student making the appeal and the faculty member whose grade is being appealed shall each be given a copy of the list and each shall be permitted to strike not more than two names;
3. from the remaining names the Department Chairperson shall select the two faculty members to serve on the Committee.

B. If the Chairperson of the Department is the faculty member whose grade is being appealed a full time faculty member from the Department shall be selected to serve as a substitute for the Department Chairperson by giving a list of full-time faculty in the Department to the student making the appeal and to the faculty member whose grade is being appealed and allowing each to strike from the list an equal number of names until only one or two persons are left. If two are left by this process one shall be selected by lot.

IV. After one year the Faculty Senate will study the results of the appeal process and may modify, continue or discontinue the procedures as it deems appropriate. (The grade appeal process will continue in full force through 1981-82.)

### Other Learning Opportunities

The various curricula are designed to meet the interests and the needs of those who enter the University. Many students will, however, elect to supplement their programs with individually initiated learning experiences. Opportunities for such self-expression are varied and include: Directed Study, Independent Study (faculty supervised research into areas of study outside of the current curriculum), Contract Learning (non-traditional with an approved sponsoring agency), and Cross-Registration (selection of courses from one or more public and private colleges in the region). Some students will elect to create their own curricula by taking advantage of the opportunities afforded by the Multidisciplinary Studies Program (self-initiated interdepartmental and/or interdisciplinary major programs).

### Advanced Placement

The University recognizes that ever-increasing numbers of students complete appropriate college level studies in secondary school. Advanced Placement and college credit are awarded to students presenting Advanced Placement Examination grades of three or higher. The AP exams are offered by the College Entrance Examination Board. Such course credits may be used to satisfy degree requirements.

### Contract Learning

1. Definition: Contract Learning is the program which enables students to earn academic credits for experiential learning projects formulated with the advice and consent of the faculty.

2. The program is open to all degree candidates who in general should be juniors or seniors.

Students below the junior level who can establish their capability for a proposed project may participate in the program.

3. The normal contract should be for three credits. Projects proposing a greater number of credit hours should be scrutinized with extra care.

4. Contract Learning credits are considered as part of the normal student credit load and subject to University policy with regard to credit hour limitations. During the drop-and-add period the student may drop the contract. Up to five weeks in the semester the student may increase the credit hours for the contract, subject to the same approval procedures as for the original proposal.

5. In order to receive credit for a contract, the student must submit to the faculty sponsor a written articulation of the contract's results. Such a document, whose nature is to be determined by the sponsoring faculty member, might, for example, include the following: a) how objectives were met, b) how personal improvement has been stimulated, c) how the contract relates to his or her academic experience, d) how the contract could be improved for students who pursue similar projects in the future.

6. a) A student may take up to 6 credits of contract learning toward an SMU undergraduate degree. With the approval of the student's College Dean, a student may take up to 1/8th of SMU graduation credits under contract learning. (Thus, if a student earns all 120 credits at SMU, he/she may take up to 15 credits under contract learning credits.)  
b) Supervision of students doing projects under Contract Learning shall in all cases exclude individuals who are undergraduate degree candidates at Southeastern Massachusetts University. Contracts may also not be supervised by a faculty sponsor nor a sponsoring department chairperson.

For more detailed information about this learning opportunity please consult the university brochure on Contract Learning.

### CLEP

The University has approved the use of the College Entrance Examination Board College Level Examination Program (CLEP). The program enables those who have reached the college level of education outside the classroom to demonstrate their achievement and to use the test results for college credit and/or placement.

The equivalency of CLEP examinations to SMU courses shall be determined by the subject matter Department. One semester course credit (usually 3) or two semesters' course credits (usually 6) may be awarded for a grade at or



above the fiftieth percentile on a CLEP Subject Examination (CEEB designates each as covering one or two semesters.) Such credits may be used to satisfy distribution requirements or may be used as elective credits. Six credits each will be awarded for a grade at or above the fiftieth percentile on any of the CLEP General Examinations. These credits shall not be used in addition to Subject Examination credits in the same area. They may be applied only to satisfy distribution requirements or as elective credits outside the major field of a degree candidate. CLEP credits may not be used to duplicate credits for coursework taken at SMU or elsewhere.

CLEP credits are defined as Transfer rather than SMU credits. As transfer credits, they will be reviewed to insure that they are acceptable according to SMU standards. No more than 30 credits earned by CLEP Examination may be used to satisfy SMU degree requirements.

#### **Non-traditional Prior Learning Program**

See description under Division of Continuing Studies and Special Programs section.

#### **Directed Study**

Students who wish to take courses which are not being given in a particular semester may enroll in a Directed Study Program in order to do so. In Directed Study, faculty members must agree to provide students with close supervision in accomplishing the same course objectives which would have been accomplished had the student taken the course on a regular class basis. Permission for Directed Study must be obtained from the subject/course faculty member, major Department Chairperson, and Dean involved after consultation with the Faculty Advisor. Forms for enrolling in Directed Study are available at the Registrar's Office. Directed Study courses will be designated as such on the student's transcript.

#### **Independent Study**

Upper Division students may request to do Independent Study for up to twelve (12) semester hours of credit (maximum allowed for entire academic career) upon recommendation of the Faculty Advisor, Department Chairperson, and Faculty Sponsor. The approval of the student's Academic Dean is required. The student must submit a written proposal and outline of the program of study to be undertaken, which, if approved by the Sponsor and the Department Chairperson, will become a guide for evaluating the student's performance and accomplishment.

The student will be held responsible for meeting the requirements of the Independent Study as outlined and approved, and the Sponsor will assume responsibility for coordinating the Independent Study, evaluating its results, and determining an appropriate grade. Independent Study will only be approved for research into areas of study that do not duplicate the University's current curriculum of courses.

#### **Military Service Training**

For Military Service School training, credit may be awarded according to the recommendations contained in the most recent Guide to the Evaluation of Educational Experience in the Armed Services of the American Council on Education. These credits will be applied only outside the major field of a degree candidate. CLEP Subject Examinations may be used to establish proficiency within proposed major field as part of the preadmission process.

#### **Multidisciplinary Studies Major**

See College of Arts and Sciences section.

#### **SACHEM Cross-Registration**

The consortium of area colleges known as SACHEM (Southeastern Association for the Cooperation of Higher Education in Massachusetts) allows SMU students to register for courses at Stonehill College; Bridgewater State College; Bristol, Cape Cod, and Massosoit Community Colleges; The Massachusetts Maritime Academy; Dean Junior College; and Swain School of Design. Cross-registration is on a space-available basis. For further information contact the SMU Registrar's Office.

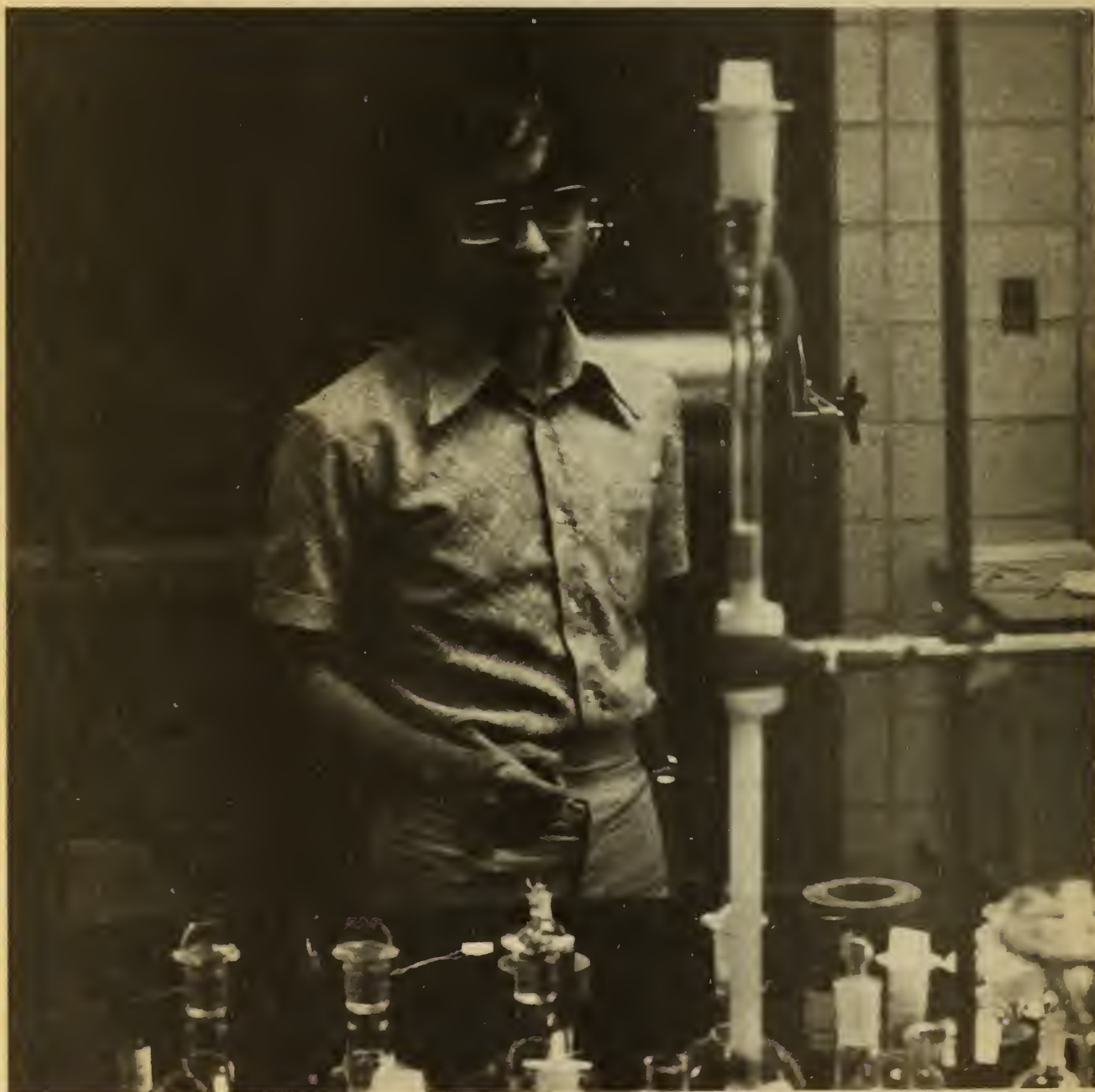
#### **The Graduate School**

The SMU Graduate School currently offers graduate work leading to an appropriate Master's degree in Biology, Chemistry, Electrical Engineering, Mathematics, Physics, Textile Chemistry, Textile Technology and Visual Design in the day division. Master's programs in Art Education, Bilingual Education, Business Administration and Medical Laboratory Science are offered in the Division of Continuing Studies. Detailed program descriptions and information on admissions may be found in the Bulletin of the Graduate School available from the office of the Dean of the Graduate School.

#### **Scheduling of Courses**

The actual scheduling of courses is dependent on the availability of qualified faculty and resources and is subject to change.





Students in the College of Arts and Sciences may select their major fields of study from among the following: Biology, Chemistry, Computer Science, Economics, English, Foreign Literature and Languages (French, German, Portuguese, Spanish), History, Humanities and Social Sciences, Mathematics, Medical Technology, Multidisciplinary Studies, Philosophy, Physics, Political Science, Psychology and Sociology/Anthropology.

Majors in Biology, Chemistry, Computer Science, Medical Technology and Physics are candidates for the Bachelor of Science degree. Majors in Mathematics may elect to be candidates for either the Bachelor of Arts or the Bachelor of Science degree. All other majors are candidates for the Bachelor of Arts degree.

The College also offers minor programs in Economics, History, Philosophy, Political Science, and Sociology and Anthropology.

Although the University does not offer degrees in Education and Pre-Medical studies, students interested in Education can take sufficient courses to receive State Certification, and students intending to enter medical school can plan an appropriate program of study through SMU's Pre-Medical Program with the help of its Advisory Committee. There is also a Pre-Law Advisory Committee.

## Requirements for the Bachelor of Arts Degree

**6 credits**  
**Freshman English, ENG 101, 102**

**6 credits**  
**Literature (except English majors)**  
English Literature, Literature in a Foreign Language or Foreign Literature in translation. English and Foreign Literature and Languages Departments shall specify which courses satisfy the requirements.

**9 credits**  
**Natural Science**  
Courses taught in Chemistry, Biology, Medical Technology, and Physics with courses taught by other Departments at the discretion of the student's major Department.

**12 credits**  
**Humanities**  
The credits must not be taken in a student's major field. No more than 6 credits from any one field. Choose from:  
1. History  
2. Philosophy (including logic)  
3. Art and Music (excluding applied courses)  
4. Foreign Literature and Languages (including first year 101-102, but excluding literature)

**12 credits**  
**Social Science**  
The credits must not be taken in a student's major field. No more than 6 credits from any one field. Choose from:  
1. Economics  
2. Political Science  
3. Psychology  
4. Sociology/Anthropology

Total: 45 credits

**Department Requirements**  
Every student must complete at least thirty semester credits of work in his major field. For details see section under major program.

**Free Electives**  
A sufficient number of courses must be elected so that the earned credits total a minimum of 120. Certain majors require more than 120 credits.

**Quality Requirement**  
A cumulative grade point average of at least 2.00 out of a possible 4.00 is required of all students. A grade point average of at least 2.00 is also required in courses in the major field.

Foreign Language Requirements	Requirements for the Bachelor of Science Degree	Quality Requirement
<p>Only students majoring in English must satisfy a Foreign Language requirement for the Bachelor of Arts degree. Some departments however do strongly recommend the taking of a foreign language. Students should consult their departmental advisor. This requirement may be satisfied in one of the following ways:</p> <ol style="list-style-type: none"> <li>1. A satisfactory score on the Achievement Test given by the College Entrance Examination Board.</li> <li>2. Completion of course 202 in a modern language at SMU.</li> <li>3. Satisfactory performance in both oral and written proficiency tests, if a student has fluency in French, German, Portuguese, Russian or Spanish.</li> </ol> <p>Entering students will be granted advanced standing in the language of their choice on the basis of his score on the Achievement Test and grades in high school. A student who has studied a language for two years or more may not repeat the same language for credit at the elementary level at SMU. A student who has received advanced standing or has satisfied the language requirement by passing the appropriate Achievement Test must take the credit equivalent in electives to attain the 120 credits needed for graduation.</p>	<p><b>6 credits</b>  <b>Freshman English</b>  All first year students are required to take Freshman English, a two-semester course in the basic skills of communication, written and spoken.</p> <p><b>6 credits</b>  <b>Literature</b>  English Literature, Literature in a Foreign Language, or Literature in translation. The Departments of English and Foreign Literature and Languages shall specify which courses satisfy this requirement.</p> <p><b>18 credits</b>  <b>Humanities-Social Sciences</b>  These credits are to be taken from the areas of Humanities and Social Sciences listed below.</p> <p><b>Humanities</b>  <ol style="list-style-type: none"> <li>1. History</li> <li>2. Philosophy (including Logic)</li> <li>3. Art and Music (excluding Applied courses)</li> <li>4. Foreign Language (excluding Literature)</li> </ol> </p> <p><b>Social Sciences</b>  <ol style="list-style-type: none"> <li>1. Economics</li> <li>2. Political Science</li> <li>3. Psychology</li> <li>4. Sociology</li> </ol> </p> <p><b>Department Requirements</b>  Every student must complete at least thirty semester credits of work in his major field. For details see section under major program.</p> <p><b>Free Electives</b>  A sufficient number of courses must be elected so that the earned credits total a minimum of 120. Certain majors require more than 120 credits.</p>	<p>A cumulative grade point average of at least 2.00 out of a possible 4.00 is required of all students. A grade point average of at least 2.00 is also required in courses in the major field.</p> <hr/> <p><b>Foreign Language Requirements</b></p> <p>Some departments do strongly recommend the taking of a foreign language. Students should consult their departmental advisor. This requirement may be satisfied in one of the following ways:</p> <ol style="list-style-type: none"> <li>1. A satisfactory score on the Achievement Test given by the College Entrance Examination Board.</li> <li>2. Completion of course 202 in a modern language at SMU.</li> <li>3. Satisfactory performance in both oral and written proficiency tests, if a student has fluency in French, German, Portuguese, Russian or Spanish.</li> </ol> <p>Entering students will be granted advanced standing in the language of their choice on the basis of his score on the Achievement Test and grades in high school. A student who has studied a language for two years or more may not repeat the same language for credit at the elementary level at SMU. A student who has received advanced standing or has satisfied the language requirement by passing the appropriate Achievement Test must take the credit equivalent in electives to attain the 120 credits needed for graduation.</p>



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## Faculty and Fields of Interest

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**Yukio Asato** • microbial genetics

**Ronald Campbell** • parasitology

**Robert K. Edgar** • diatom systematics and ecology, microscopy

**Robert Griffith** • physiology and endocrinology of fish

**James G. Hoff** • marine ecology, fish biology

**Richard M. Ibara** • physiological ecology of fishes

**Frederick Kazama** • mycology marine microbiology, cell ultra-structure

**Robert Leamnson** • cell biology, virology

**Barton M. Matsumoto** • biological control and insect ecology

**Sanford A. Moss** • general biology, apiculture, elasmobranch and teleost morphology and behavior

**Donald J. Mulcare** • developmental biology

**Francis X. O'Brien** • marine invertebrates

**Henry S. Parker** • marine ecology, aquaculture, marine macroalgae

**Dorothy Read** • biophysics, bacterial plasmids

**John J. Reardon** • ecology of coastal zone and dune environment

**Normand H. Sasseville (chairperson)** • anatomy and physiology

**James R. Sears** • ecology of marine algae

**Jefferson Turner** • biological oceanography, marine plankton

**Robert Wilson** • computer analysis of behavior

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**Biology Major:  
General Biology Option**

The biology major provides opportunities for building the foundations of a career in one of the many specialties in private industry and in federal and state agencies which employ biologists. The student who elects the General Biology Option may, through appropriate selection of electives, prepare for admission to medical, dental and veterinary colleges and for admission to graduate work in the life sciences. Increasing

numbers of students elect to major in Biology as a means of providing themselves with a general framework of ideas concerning the interactions of living things. A substantial number of these students proceed towards vocational objectives which do not require a specialist's knowledge of Biology. Students who may eventually pursue graduate studies are urged to elect foreign languages and mathematics

courses only after consulting with an advisor. Students contemplating graduate school studies should elect analytic geometry and calculus and should elect courses which provide a foundation in statistics, use of computers and in design of experiments and analysis of data. In many areas of biology a substantial background in physics, electronics, meteorology or geology may be desirable.

**Requirements**

First Year (Proposed Sequence)				Semester Credits:	First	Second
BO	121	131	Biology of Organisms I with lab		4	
BO	122	132	Biology of Organisms II with lab			4
CH	151	152	Principles of Modern Chemistry		3	3
CH	163	164	Quantitative Chemistry		2	2
ENG	101	102	Freshman English		3	3
MA	111*	112*	Analytic Geometry and Calculus		4	4
					16	16

\*Math course to be selected in consultation with your advisor. MA 111-112 is recommended for students whose math background is good, and is needed if Physics 111-112 is to be taken in the second year, rather than Physics 101-102. MA 105-106, Technical Calculus, may be substituted. MA 101-102, Elements of College Math, is permitted for students whose math background is weak.

Second Year (Proposed Sequence)				Semester Credits:	First	Second
BO	124	134	Biology of Populations		4	
BO	234	244	Biology of Cells			4
CH	251	252	Organic Chemistry		3	3
CH	265	266	Organic Chemistry Lab		1	1
PH	101	102	**Introduction to Physics I and II		3	3
			Humanities or Social Science		3	3
			Elective		2	2
					16	17

\*\*Physics 107, 109 Basic Physics may be substituted for Introductory Physics.

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**Third and Fourth Years**

Course selection for the third and fourth years of the biology major must be determined in consultation with an advisor. During the third and fourth year all majors are required to elect at least 18 credits in upper division biology courses. Upper division courses in physics, chemistry, engineering or mathematics may be substituted with the written

approval of the advisor and the department chairperson prior to registration in the course.

Biology majors are required successfully to complete a minimum of 12 credits in upper division biology courses in order to be certified for graduation.

The requirements of the College of Arts and Sciences must also be met prior to graduation.

**Biology and Physical Science Electives for General Biology Option:**

Eighteen (18) credits should be elected from the following list of courses. Other upper division courses in mathematics, chemistry, physics, engineering, geology and biology may be used to fulfill upper division requirements in biology with prior written approval of advisor and chairperson.

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				Credits
BO	221	222	Anatomy and Physiology I and II	8
BO	231		General Genetics	3
BO	241		General Genetics Laboratory	1
BO	314		General Ecology	4
BO	317		Biology of Invertebrate Animals	4
BO	318		General Entomology	4
BO	320		Embryology	4
BO	321		General Microbiology	4
BO	327		Molecular Biology	4
BO	331		Advanced Genetics	3
BO	350		Survey of Plant Kingdom	4
BO	370		Animal Physiology	4
BO	409		Directed Study	3
BO	411		Proseminar	3*
BO	415		Comparative Vertebrate Anatomy	4
BO	421		Developmental Biology	4
BO	424		Biology of Animal Parasites	4
BO	430		Design of Experiments	4
BO	434		Plant Physiology	4
BO	440	441	Research Project	2-2
BO	451		Environmental Health	3
BO	460		Biological Transmission Electron Microscope	4
BO	470		Introductory Mycology	4
BO	509		Directed Study	3
BO	518		Biogeography	3
BO	520		Animal Behavior	3

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**Biology and Physical Science  
Electives for Marine Biology  
and Coastal Zone Ecology  
Option:**

The Marine Environment Option in Biology is designed to meet the needs of students who aspire to careers in ecology, marine biology, fisheries biology and biological oceanography. Students who elect the Marine Environment Option are urged to plan their program in close cooperation with

their advisor. Facility in mathematics, chemistry and foreign languages is desirable. Russian, German or French are preferred language elective. Biology majors who elect the Marine Environment Option have an opportunity to elect marine-oriented courses during their junior and senior years and must meet college degree requirements for the B.S. degree.

Students who have completed the first two years of the biology major may elect to

concentrate in courses dealing with the ecology of the coastal zone, its estuaries and inshore waters.

Eighteen (18) credits should be elected from the following list of junior and senior level courses. Other upper division courses in mathematics, chemistry, physics, engineering, geology and biology may be used to fulfill upper division requirements in biology with prior written approval of the advisor and chairperson.

			Credits
BO 314	General Ecology		4
BO 315	Biology of Algae		4
BO 316	Descriptive Oceanography		3
BO 317	Biology of Invertebrate Animals		4
BO 321	General Microbiology		4
BO 370	Animal Physiology		4
BO 411	Proseminar, Current Topics in Biology		3*
BO 413	Biology of Fishes		4
BO 415	Comparative Vertebrate Anatomy		4
BO 421	Developmental Biology		4
BO 424	Biology of Animal Parasites		4
BO 428	Aquaculture		3
BO 430	Design of Experiments		4
BO 440 441	Research Project		2-2
BO 451	Environmental Health		3
BO 454	Biology of Sharks		3
BO 470	Introductory Mycology		4
BO 471	Marine Microbiology		4
BO 517	Advanced Biology of Invertebrate Animals		4
BO 518	Biogeography		3
BO 520	Animal Behavior		3
BO 531	Advanced Ichthyology		4
BO 535	Analysis of Biological Data		4
BO 545	Biological Oceanography		4

\*Maximum credits allowed for Biology elective.  
Beginning with class of 1983.

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## Biology Courses

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**BO 101 • 3 credits****General Biology I**

The content of this course deals with the basic concepts of biology and their implications in human affairs. Lecture 3 hours/Fall Semester

**BO 102 • 3 credits****General Biology II**

Continuation of BO 101. These courses may be elected by students wishing to fulfill the requirement of six semester hours in the natural sciences. Not offered for credit to biology majors. Lecture 3 hours/Spring Semester

**BO 103 • 3 credits****Topics in Biology**

Study of specific areas of biological science such as Human Genetics, Man and Microbes, The Insect World. Not offered for credit to biology majors. Lecture 3 hours. Prerequisite: BO 101 or permission of instructor.

**BO 110 • 3 credits****Biology of Human Reproduction**

Study of the reproductive process from a biological point of view, emphasizing the anatomy and physiology of reproduction and the factors affecting this process. Not offered for credit to biology majors. Lecture 3 hours. Prerequisite: BO 101 or permission of instructor.

**BO 111 • 4 credits****Introduction to Human Physiology**

Introduction to the general physiological principles involved in human body functions with homeostasis as the unifying theme. Not offered for credit to biology majors. Lecture 4 hours/Fall Semester.

**BO 112 • 3 credits****The Ocean Environment**

The study of the ocean environment as an integrated ecosystem: The biology of marine organisms and the related physical, chemical and geological processes of the sea with attention given to man's impact by exploitation of marine resources and pollution. Lecture 3 hours

**BO 121, 122 • 3-3 credits****Biology of Organisms I, II**

The first course for the biology major is an introduction to the world of living things and a consideration of their structure, function, and behavioral adaptations. During the initial half of this two-semester course, the student is exposed to the diversity and evolutionary relationships of organisms. The second semester covers the functional and adaptive processes of living organisms with emphasis on solutions to common problems of survival. Lecture 3 hours/Fall-Spring Semesters

**BO 124 • 3 credits****Biology of Populations**

Populations are examined as fundamental evolutionary and ecological units of organization and function with emphasis upon Mendelian and population genetics, evolutionary mechanisms, speciation, adaptations and strategies at the population level, growth and regulation of population size, distribution patterns, biological interactions, and energy and materials flow through communities.

**BO 131, 132 • 1-1 credit****Biology of Organisms Laboratory I, II**

The biology of organisms laboratory courses cover two semesters and are closely synchronized to the biology of organisms lecture course (BO 121, 122). The first semester is a survey of the world of organisms involving experimentation and observational procedures of some major groups of organisms. The second semester emphasizes the functional aspects of organisms primarily through experimentation. Laboratory 3 hours/Fall-Spring Semesters

**BO 134 • 1 credit****Biology of Populations Laboratory**

Laboratory and field observations are used to examine selected aspects of the ecological and evolutionary characteristics of biological populations. Emphasis is given to quantitative observations supported by a student-computer interactive approach to the simulation of population behavior and data analysis. Topics include sampling and Poisson, binomial and normal distributions, the genetic behavior of Hardy-Weinberg equilibrated and non-equilibrated populations, models of phenotypic variability and simple and age-structured population growth, and the spatial and temporal distribution of populations.

**BO 141 • 3 credits****Introduction to Ecology**

An introduction to the structure and metabolism of ecosystems especially as they relate to human affairs. Topics such as energy and materials flow in ecosystems, biological interactions (competition, predation), ecosystem evolution and population structure and dynamics will be examined as the foundations for investigating problems of human demography, epidemiology, food, energy and pollution. Not offered for credit to biology majors.

**BO 151, 152 • 3-3 credits****Fundamentals of Biology I, II**

The first course in biology for the nursing major is a rigorous two semester course that meets three hours per week. The first semester is spent in exploring the diversity of life and in comparing similarities and differences among the various groups of organisms. Consideration of the requirements of the individual organism as a functional entity. The second semester is spent in analyzing gene function, cellular function and control mechanisms and the contribution of the individual to the population and the consequence of the population to the species.

**BO 216 • 3 credits****Biology of Aging**

The biological background to the aging process will be presented. This will include a description of the theories of aging and the developmental and physiological changes that occur throughout the aging process. Prerequisite: BO 101. Lecture 3 hours.



**BO 221 • 3 credits****Anatomy and Physiology I**

A systematic study of the human body emphasizing structure and function.

Lecture 3 hours/Fall Semester

Prerequisite: BO 121, 124

**BO 222 • 3 credits****Anatomy and Physiology II**

Continuation of BO 221.

Lecture 3 hours/Spring Semester

Prerequisite: BO 221

**BO 223 • 1 credit****Anatomy and Physiology****Laboratory I**

Emphasis is placed on methods of measuring physiological processes.

Study of body structure is accomplished by dissection of animal specimens and by the use of tissue materials.

Laboratory 3 hours/Fall Semester

Prerequisite: BO 121, 124

**BO 224 • 1 credit****Anatomy and Physiology****Laboratory II**

Continuation of BO 223.

Laboratory 3 hours/Spring Semester

Prerequisite: BO 223

**BO 231 • 3 credits****General Genetics**

This course is introductory to the science of heredity. The lectures present integrated concept of the gene provided from the study of Mendelian and Molecular genetics.

Selected topics in population genetics, quantitative inheritance, and human genetics are included.

Lecture 3 hours/Fall Semester

Prerequisite: BO 121, 124, BO 234 desirable

**BO 234 • 3 credits****Biology of Cells**

An inquiry is made into the structures and function of cells. This study includes chemical composition, control mechanisms, and energy transformations on the cellular level.

Lecture 3 hours/Spring Semester

Prerequisite: Sophomore standing in Biology

**BO 241 • 1 credit****General Genetics Laboratory**

A laboratory to be taken concurrently with BO 231.

Laboratory 3 hours/Fall Semester

**BO 252 • 4 credits****Medical Microbiology**

Fundamentals of microbiology is presented to prepare students interested in health science fields. Topics included are basic microbiology, control of microorganisms, host resistance and pathogenic microorganisms.

Lecture 3 hours/Laboratory 2 hours/Fall Semester

Prerequisite: Open only to students enrolled in the College of Nursing.

**BO 314 • 4 credits****General Ecology**

General ecology considers the general field of interrelationships between organisms and their environments with emphasis on the biology of populations, and includes laboratory and field studies of terrestrial, fresh water and marine environments.

Extended field trips, some of which will be held on weekends and/or holidays, are an integral part of this course.

Lecture 2 hours/Laboratory 5 hours

Spring Semester

Prerequisite: BO 114, 231

**BO 315 • 4 credits****Biology of Algae**

The freshwater and marine algae of the northeastern United States are surveyed with an emphasis on their taxonomic and ecological evolution. The laboratory focuses upon the identification, isolation and cultivation of algae collected during field trips. Extended field trips into Buzzards Bay and Vineyard Sound are an integral part of the course.

Lecture 3 hours/Laboratory 4 hours/Fall Semester

Prerequisite: BO 121, 124

**BO 316 • 3 credits****Descriptive Oceanography**

An introduction to the field of oceanography. Physical, chemical, and ecological aspects are emphasized as to provide a basic foundation for further work in biological oceanography.

**BO 317 • 4 credits****Biology of Invertebrate Animals**

This course presents an intensive survey of the taxonomy, morphology and functioning of the major invertebrate phyla, with special reference to the adaptations of the intertidal marine invertebrates of the North Atlantic coast. Field trips to the diverse habitats of the area constitute an integral part of the laboratory. Several collecting trips will be held on weekends aboard the university research vessel in Buzzards Bay and Vineyard Sound.

Lecture 3 hours/Laboratory 4 hours/Fall Semester

Prerequisite: BO 121, 124

**BO 318 • 4 credits****General Entomology**

This is an introductory survey course in the study of insects. The taxonomy of families will be emphasized in lectures. Studies will also include the structure, habits, physiology and ecology of insects. During some laboratories, field trips will be conducted to collect and observe insects in their natural habitats.

**BO 320 • 4 credits****Embryology**

A description of reproductive and embryological principles, followed by a study of typical vertebrate and invertebrate embryology. The organogenesis of the major vertebrate systems will be described. The laboratory will include the microscopic study of vertebrate embryos and the observation of the development of selected living vertebrate and invertebrate embryos.

Lecture 3 hours/Laboratory 4 hours.

Prerequisite: Biology core.

**BO 321 • 4 credits****General Microbiology**

This course explores the nature and diversity of microorganisms. Special emphasis is placed on bacterial cytology, nutrition, physiology, and growth. Topics on the significance of microorganisms in the environment and the evolutionary relationships of microorganisms are included.

Lecture 3 hours/Laboratory 4 hours/Fall Semester

Prerequisite: BO 121, 124, 234



**BO 327 • 4 credits****Molecular Biology**

A narrative and experimental approach to structure, function and regulation at the molecular level. Study includes genetic organization of DNA, replication, regulation of transcription and translation, molecular embryology, gene engineering as well as cell proliferation and abnormal growth. Prerequisite: Biology core or consent of instructor

**BO 331 • 3 credits****Advanced Genetics**

An historical perspective of the concepts leading to the present theory of gene structure and function is considered. The rigorous experimental evidence supporting this synthesis is reviewed by extensive reading and discussion of original publications. Particular emphasis is placed on the papers published since 1940 having direct bearing in elucidating the structure and function of the gene. Lecture 3 hours/Spring Semester  
Prerequisite: BO 231, 234

**BO 350 • 4 credits****Survey of Plant Kingdom**

The phylogenetic relationship among members of the plant kingdom will be studied with an emphasis on evolutionary trends among plant groups rather than an individual plant species. Toward this goal the cytology, anatomy and morphology of plants from Monerans through the Angiosperms will be covered. Representatives of most groups will be studied in the laboratory and some will be observed in their natural habitats during two field trips. Lecture 3 hours/Laboratory

and field trips 4 hours

Prerequisite: One year of Biology of Organisms or equivalent

**BO 370 • 4 credits****Animal Physiology**

A study of the general principles of animal physiology integrating molecular, cellular, organ system and whole organism approaches. The accompanying laboratory will provide skill in the techniques used in animal physiological investigations. Lecture 3 hours/Laboratory 4 hours  
Prerequisite: Biology of Cells (or equivalent); Organic Chemistry

**BO 409 • 3 credits****Directed Study**

Terms and hours to be arranged. Readings and reports on special topics.

**BO 411 • 1-3 credits****Proseminar: Current Topics in Biology**

Students with senior standing (or others with consent of the instructor) report on and discuss current biological problems as presented in principal journals, abstracts and reviews. The work of each seminar is usually built upon a single unifying content area. 1-3 hours/Fall and Spring Semester

**BO 413 • 4 credits****Biology of Fishes**

Field trips and extensive laboratory work are emphasized in this course. The life histories, ecology and classification of the fishes of the coastal and inland waters of the northeastern states are studied in detail.

Lecture 2 hours/Laboratory 5 hours/Fall Semester

Prerequisite: Consent of instructor, junior or senior standing in biology

**BO 415 • 4 credits****Comparative Vertebrate Anatomy**

Structure and phylogeny of vertebrates. Laboratory work illustrates evolutionary trends and specializations. Lecture 3 hours/Laboratory 3 hours.

**BO 421 • 4 credits****Developmental Biology**

The molecular, cellular, anatomical and physiological aspects of reproduction, embryology, organogenesis and other developmental phenomena of animals are considered in the lecture. Some aspects of plant development are discussed. The laboratory combines anatomical and experimental studies. Lecture 3 hours/Laboratory 4 hours/Fall and Spring Semesters  
Prerequisite: Biology core, especially biology of cells.

**BO 424 • 4 credits****Biology of Animal Parasites**

An introductory course in parasitology emphasizing major protozoan, helminth, and arthropod parasites of man, domestic animals, and fishes. Laboratory exercises include practical and experimental techniques. Lecture 3 hours/Laboratory 3 hours

**BO 428 • 3 credits****Aquaculture**

The study of aquaculture in a global context with emphasis on a few selected forms to serve as examples of working models. The course includes a consideration of theoretical and practical aspects of aquaculture. Field trips and occasional laboratory exercises supplement the course. Lecture 3 hours  
Prerequisite: Biology core program, Ecology and either Biology of Fish, Invertebrates, or Algae

**BO 429 • 1 credit****Aquaculture Laboratory**

Instruction and hands-on experience in laboratory and field aquaculture techniques. Students, as a team, will initiate, develop and/or maintain an aquaculture project. Laboratory 4 hours.  
Prerequisite: Biology core, Ecology, either Biology of Fish, Invertebrates or Algae.

**BO 430 • 4 credits****Design of Experiments in Biology**

Statistical concepts for the planning of experiments and the summarization of numerical data form the basis of this course. Lectures emphasize probability, testing of hypothesis and the application of different, statistical concepts and problems. Prerequisite: MA 101, 102 or equivalent; upper division biology standing

**BO 434 • 4 credits****Plant Physiology**

Introductory course presenting topics about how plants function. Emphasis is placed on higher plants, but discussion of lower plants is also included. Topics include plant-soil water relations, transpiration, translocation, mineral nutrition, photosynthesis, hormones and growth regulators, differentiation and development, photomorphogenesis, flowering. Laboratory combines classical and modern research methods.

Lecture 3 hours/Laboratory 4 hours

Prerequisite: Biology core or consent of instructor

**BO 440 • 2 credits****Research Project**

The advanced student selects a research project in his field of general interest and, under the supervision of an appropriate staff member, proceeds to independent research leading to the solution of that problem. The student should plan to devote an average of 7 hours per week in this research. Hours will be arranged.

Fall and Spring Semester

**BO 441 • 2 credits****Research Project**

Continuation of BO 440

**BO 451 • 3 credits****Environmental Health**

A study of the nature and effects of health hazards which are magnified or produced by human activity. Ionizing radiation, noise, organic and inorganic pollutants of air and water will be evaluated. Discussions will focus on the origins of stresses, their transmission to man, biological effects and methods of protection. Methods of measurement of stresses will be an integral

part of the course. Some consideration will be given to economic, political and sociological implications of the controls of stresses. The course format will encourage student participation in the discussion of environmental problems. Students will be expected to investigate etiological agents such as radionuclides, heavy metals, pesticides, herbicides or industrial products and by-products.

Prerequisite: Upper division or graduate standing or consent of instructor

**BO 454 • 3 credits****Biology of Sharks**

The morphology, physiology, behavior and evolutionary history of the most ancient group of living jawed fishes will be considered in this course. The most unusual aspects of these fish, such as modes of reproduction, osmotic regulation, feeding mechanisms and sensory physiology, will be stressed throughout. The course will include lectures, discussions, laboratory work and field trips.

Prerequisite: Permission of instructor

**BO 460 • 4 credits****Biological Transmission****Electron Microscopy: Introduction to Techniques**

The course will introduce students to the theory and techniques employed in transmission electron microscopy. The student will fix, embed, section, and examine biological specimens with the electron microscope. The necessary darkroom procedures will also be taught. Each student will be expected to present their findings in the form of a written report at the end of the semester. Lecture 1 hour/Laboratory 6 hours

**BO 470 • 4 credits****Introductory Mycology**

The course introduces the student to the taxonomy and the biochemical activities of the fungi. The laboratory exercises involve the isolation, identification, and physiological characterization of some of the community encountered marine and terrestrial fungi.

Lecture 3 hours/Laboratory 3 hours

**BO 471 • 4 credits****Marine Microbiology**

This course will deal with the taxonomy, physiology, and the role of heterotrophic microorganisms in the marine environment. The viruses will also be considered. Emphasis will be placed on the activities of the viruses, bacteria, and the fungi in the marine environment. In the laboratory, exercises will be conducted on the methods of enumeration, detection of selected physiological groups, uptake and depuration of microorganisms by shellfish, marine biodegradation, and the influence of environmental parameters on the growth and activities of marine microorganisms.

Lecture 3 hours/Laboratory 4 hours/Spring Semester

**BO 479 • 2 credits****Developmental Biology of Marine Animals**

Descriptive and experimental embryology of invertebrates and fish. Offered in the late spring and early summer, alternate years.

**BO 495 • 3 credits****Independent Study**

Terms and hours to be arranged. Readings and reports on special topics.

**BO 496 • 3 credits****Directed Study**

Terms and hours to be arranged. Readings and reports on special topics.

**BO 509 • 1-3 credits****Directed Study in Biology**

Terms and hours to be arranged. Readings and reports on special topics.

**BO 511 • 1-3 credits****Graduate Seminar in Biology**

Student discussions of selected topics will be carried out under the supervision of a faculty member. Topics to be announced in advance of seminar.

Fall and Spring Semester  
Prerequisite: Graduate standing or consent of instructor

**BO 517 • 4 credits****Advanced Biology of Invertebrate Animals**

An advanced treatment of the taxonomy, morphology, and function of invertebrate animals.

Prerequisite: Graduate standing or consent of instructor



**BO 518 • 3 credits****Biogeography**

Biogeography is the study of present and past global distributions of plant and animal taxa in terrestrial, marine and freshwater habitats. Distributional patterns will be considered in relation to changes of the physical environment over geological time, such as movements of continents due to plate tectonics and related changes in global patterns of climate and resources. The evolution of recent association of organisms will also be examined in relation to ecological interactions between organisms, such as competition and predation. Lecture 3 hours.  
Prerequisites: BO 314 or equivalent.

**BO 520 • 3 credits**  
**Animal Behavior**

Comparative and evolutionary aspects of behavior of invertebrate and vertebrate animals are studied. Structure and function of nervous systems, simple behavioral patterns including reflexes and other forms of innate behavior as well as more complex patterns including learning and social behavior are stressed. Lecture 3 hours/Fall and Spring Semester  
Prerequisite: Senior or graduate standing and consent of instructor

**BO 522 • 4 credits****Experimental Embryology**

Reviews current concepts of development. The laboratory investigates classical and recent experiments and encourages individual projects in plant and animal development. Lecture 2 hours/Laboratory 6 hours  
Prerequisite: Developmental Biology or consent of instructor

**BO 525 • 1 credit****Graduate Student Seminar**

This course offers an opportunity for all graduate students to present a seminar to their peers and faculty at the graduate level. A different theme for the seminar will be used each term but generally students will choose a topic, search current literature, compile a working bibliography, and give an oral presentation. Each student (and attendant faculty) will write a brief evaluation to be given to the speakers following their presentation. This course is required of all graduate students. Two graduate Student Seminar credits are allowable toward the Master's degree.  
Prerequisite: Graduate status

**BO 531 • 4 credits****Advanced Ichthyology**

Advanced ichthyology deals with studies of fish phylogeny and classification, physiological problems peculiarly faced by fish, and aspects of fisheries hydrography. The laboratory stresses independent work on the age growth structure of fish populations as well as the measurement of physiological parameters. Student participation in seminars is required. Lecture 3 hours/Laboratory 3 hours  
Prerequisite: Graduate standing or consent of instructor

**BO 535 • 3 credits****Analysis of Biological Data**

The processing and analysis of biological and especially ecological data are the primary objectives of this course. Topics include problems encountered in processing and handling of data, computers and computer programming, distribution and transformation, associations, computer simulations, non-parametric methods, and usefulness and limitations of multivariate methods. Lecture 3 hours  
Prerequisite: Design of Experiments in Biology or equivalent

**BO 536 • 1 credit****Laboratory for Analysis of Biological Data**

Laboratory for above described course. Topics correspond with the lectures. Laboratory will be offered only if on-line computer terminals become available in a classroom setting. Laboratory two 1½ hour meetings.

**BO 545 • 4 credits****Biological Oceanography**

The cycle of productivity in the marine environment is emphasized and the physiological and morphological adaptations of plant, animal and bacterial populations within various oceanic regions are considered. Interrelationships of the plankton, the nekton and the benthos are stressed. Lecture 3 hours/Laboratory 2 hours

**BO 593 • 1-3 credits****Graduate Research Project**

Directed research for graduate students. Hours by arrangement. Spring and Fall Semester.  
Prerequisite: Graduate standing or consent of instructor

**BO 595****Independent Study****BO 599 • Not exceed 10 credits****Graduate Thesis****BO 900****Contract Learning**



# Chemistry

## Faculty and Fields of Interest

**Alan Bates** • inorganic and organometallic chemistry

**Russell Bessette** • electro-analytical chemistry and chemical instrumentation

**Donald Boerth** • physical organic chemistry, theoretical chemistry

**James Golen** • physical inorganic chemistry, synthesis and molecular spectroscopy of inorganic compounds

**Robert Hooper** • coordination chemistry

**Dwight Mowery** • organic and carbohydrate chemistry

**Michele Scullane** • transition metal chemistry and magnetic resonance

**Timothy Su** • physical chemistry, ion-molecule reactions, polymer science

**George Thomas, Jr.** • physical chemistry, molecular biophysics and spectroscopy

**Ralph Tykodi** • equilibrium and non-equilibrium thermodynamics

**Claude Wagner** • geochemistry

**Margaret Wechter (chairperson)** • analytical radiochemistry

**Chang-ning Wu** • selective aromatic substitution, electro-organic synthesis, and molecular rearrangements.

**Phillip Zoretic** • development of synthetic methods, natural products synthesis and the synthesis of biologically active compounds

## Chemistry Major

The program for chemistry majors is designed to provide a solid foundation in the theoretical knowledge and practical laboratory skills necessary for a variety of professional careers. The basic program prepares students for industrial research, graduate study, medical school, secondary school or junior college teaching, technical sales, or technical writing. If the student intends to apply for admission to medical school,

he should include appropriate biology courses among his electives. A student may also enroll in a program (Chemistry and Education) leading toward a bachelors degree in chemistry and certification for teaching chemistry in secondary schools. Superior students who plan to do graduate work will be interested in the integrated B.S.-M.S. degree program in chemistry. By utilizing summer courses,

students can complete requirements for both degrees within four calendar years. Applicants whose credentials indicate the ability to succeed in this highly demanding year-round program will be granted provisional acceptance. Departmental approval must be obtained prior to the middle of the second year of study, and final acceptance is determined by the Graduate Council prior to the beginning of the fourth year.

## Requirements

First Year				Semester Credits:	First	Second
CH	151	152	Principles of Modern Chemistry		3	3
CH	165	166	Introduction to Experimentation		2	2
MA	111	112	Analytic Geometry and Calculus I and II		4	4
ENG	101	102	Freshman English		3	3
			Humanities or Social Sciences		3	3
					15	15

Second Year				Semester Credits:	First	Second
CH	251	252	Organic Chemistry		3	3
CH	265	266	Organic Chemistry Laboratory		2	2
MA	211		Analytic Geometry and Calculus III		4	
MA	212		Differential Equations			3
PH	111	112	Physics I, II		3	3
PH	121	122	Physics Laboratory (biweekly)		1	1
			English Language Literature		3	3
					16	15

Third Year				Semester Credits:	First	Second
CH	305		Modern Methods of Chemical Analysis		3	
CH	307		Procedures of Chemical Analysis		2	
CH	315	316	Physical Chemistry I, II		4	4
CH	318		Physical Chemical Measurements I			2
PH	211		Physics III		3	
PH	221		Physics Laboratory (biweekly)		1	
			Electives		3	6
			Humanities or Social Sciences		3	3
					16	15

Fourth Year				Semester Credits:	First	Second
CH	317		Physical Chemistry III		3	
CH	319		Physical Chemical Measurements II		2	
CH	401	402	Chemistry Seminar		½	½
			Humanities or Social Sciences		3	3
			Electives		6	12
					14½	15½

#### Chemistry Electives

CH	320		Computer Programming in Chemistry
CH	352		Organic Preparations
CH	362		Introduction to Biochemistry
CH	421		Organic Mechanism
CH	425		Polymer Science and Technology
CH	431		Principles of Inorganic Chemistry
CH	432		Organic Analysis
CH	442		Applied Spectroscopy
CH	491	492	Introduction to Research
Graduate (500 level) courses are open to very capable students with permission of the instructor and advisor.			

The electives must include at least 6 credits in chemistry courses and 3 credits in mathematics, applied mathematics, science, or CH 320. It is strongly recommended that two semesters of German be elected if graduate work in chemistry is contemplated. Students who wish to be certified by the American Chemical Society must include among their electives CH 552 and two other advanced chemistry electives, only one of which may be Introduction to Research. The American Chemical Society recommends that some advanced course work be selected from one or more of the following areas: inorganic chemistry, biochemistry, and polymer chemistry.

## Chemistry Courses

### CH 101 • 3 credits

#### General Chemistry I

An introduction to the fundamental chemical laws and theories covering inorganic and organic chemistry with some descriptive chemistry. For non-science majors, nurses and textile technologists.

Lecture 4 hours

### CH 102 • 3 credits

#### General Chemistry II

Continuation of CH 101.

Lecture 4 hours

Prerequisite: CH 101

### CH 103 • 1 credit

#### General Chemistry

##### Laboratory I

An introduction to chemical laboratory techniques and methods including measurements and demonstrations of chemical principles.

Laboratory 2 hours

Corequisite: CH 101

### CH 104 • 1 credit

#### General Chemistry

##### Laboratory II

Continuation of CH 103.

Laboratory 2 hours

Prerequisite: CH 101, 103

Corequisite: CH 102

### CH 130 • 3 credits

#### Chemistry and the Environment

Available to anyone in the University, this course provides substantial treatment, with demonstrations, of the chemistry involved in consumer concerns (food additives, medicines, detergents, etc.), air and water pollution, elementary biochemistry, and the general question of power generation and utilization (fuel cells, solar energy conversion, nuclear energy, etc.). Credit applies to any science distribution requirements. No

knowledge of chemistry is assumed, but it is hoped the student will have had high-school chemistry or its equivalent.

Lecture 3 hours

### CH 151 • 3 credits

#### Principles of Modern Chemistry I

An introduction to the basic physical and chemical principles pertaining to the structure of chemical species and to the nature, extent, and rates of chemical reactions. The details of atomic and molecular structure, the phenomenon of chemical periodicity, and the characteristics of equilibrium systems are emphasized and discussed in the light of modern theories. A knowledge of high-school chemistry is strongly recommended as a prerequisite for this course. Lecture and recitation 4 hours

### CH 152 • 3 credits

#### Principles of Modern Chemistry II

Continuation of CH 151.

Lecture and recitation 4 hours

Prerequisite: CH 151

### CH 161 • 1 credit

#### Introductory Applied Chemistry I

Intended primarily for regular engineering majors, this course is an introduction to chemical laboratory techniques and methods with emphasis on preparation and purification of compounds, molecular weight determination, elemental analysis, reaction stoichiometry, chemical ionization, and selected descriptive chemistry.

Lecture 1 hour/Laboratory 2 hours

Corequisite: CH 151

### CH 162 • 1 credit

#### Introductory Applied Chemistry II

Intended primarily for regular engineering majors, this course is a continuation of CH 161 with emphasis on thermochemistry, chemical equilibria, acid-base chemistry, chromatographic techniques, electrochemistry and corrosion, and organic chemistry.

Lecture 1 hour/laboratory 2 hours.

Prerequisite: CH 161

Corequisite: CH 152

### CH 163 • 2 credits

#### Quantitative Chemistry I

The theory and practice of gravimetric analysis including an introduction to instrumental analysis, the principles and the use of the spectrophotometer, absorption instruments, pH measurements, chromatography, and an introduction to volumetric analysis. This course is designed for students with professional objectives in biology and medical technology.

Lecture 1 hour/laboratory 4 hours

### CH 164 • 2 credits

#### Quantitative Chemistry II

Continuation of CH 163 with major emphasis on volumetric analysis.

Lecture 1 hour/laboratory 4 hours

Prerequisite: CH 163

### CH 165 • 2 credits

#### Introduction to Experimentation I

An introduction to the basic techniques, methods and theory of chemical experimentation, and the recording, analysis, interpreta-

tion and reporting of experimental results, based on qualitative and quantitative chemical procedures. Skills, of professional quality, needed to use apparatus for the accurate measurement of mass, volume, color intensity, refractive index, electrical energy, etc. will be developed.

Lecture 2 hours/laboratory 4 hours

### CH 166 • 2 credits

#### Introduction to Experimentation II

Continuation of CH 165.

Lecture 2 hours/laboratory 4 hours

Prerequisite: CH 165

### CH 251 • 3 credits

#### Organic Chemistry I

A survey of the chemistry of carbon compounds and introduction to the basic principles of organic chemistry.

Lecture 3 hours

Prerequisite: CH 152

### CH 252 • 3 credits

#### Organic Chemistry II

Continuation of CH 251.

Lecture 3 hours

Prerequisite: CH 251 with a grade of C- or better

### CH 263 • 1 credit

#### Bio-organic Chemistry Laboratory I

The synthesis of organic compounds and an introduction to the organic methods of separation, purification and identification. This course is coordinated with CH 251 and is designed for biology and medical technology majors. Laboratory 3 hours/Lecture 1 hour

Prerequisite: CH 152 and CH 164

Corequisite: CH 251



**CH 264 • 1 credit****Bio-organic Chemistry  
Laboratory II**

Continuation of CH 263.

Laboratory 3 hours/Lecture 1 hour

Prerequisite: CH 251 and 263

Corequisite: CH 252

**CH 265 • 2 credits****Organic Chemistry  
Laboratory I**

The synthesis of organic compounds and an introduction to the organic methods of separation, purification and identification. This course is coordinated with CH 251 and is designed for chemistry and textile chemistry majors.

Laboratory 3 hours/Lecture 1 hour

Prerequisite: CH 152 and CH 166 or CH 164

Corequisite: CH 251

**CH 266 • 2 credits****Organic Chemistry  
Laboratory II**

Continuation of CH 265.

Laboratory 3 hours/Lecture 1 hour

Prerequisite: CH 251 and 265

Corequisite: CH 252

**CH 305 • 3 credits****Modern Methods of Chemical  
Analysis**

Introduction to chemical and instrumental analytical techniques. The theory of neutralization reactions in aqueous and nonaqueous systems. Oxidation-reduction and complex formation equilibria. Basic Theory of electronic circuitry. Separation principles involving phase changes, solvent extraction and the various types of chromatography. Introduction to electrochemical, potentiometric and spectrophotometric measurements. The

statistical treatment of analytical data.

Lecture 3 hours

Prerequisite: CH 252, 266, and CH 164 or 166

Corequisite: CH 315

**CH 307 • 2 credits****Procedures of Chemical  
Analysis**

Laboratory experimentation designed to develop the techniques and illustrate applications of analytical procedures to the solution of chemical problems.

Laboratory coordinated with CH 305.

Laboratory 4 hours/Lecture 1 hour

Corequisite: CH 305

**CH 315 • 4 credits****Physical Chemistry I**

An introduction to the theoretical principles underlying chemical phenomena; applications of thermodynamics to chemical phenomena, chemical kinetics, transport processes in gases and liquids.

Lecture 3 hours/recitation 1 hour

Prerequisites: CH 152, MA 212, two semesters of college physics

**CH 316 • 4 credits****Physical Chemistry II**

Continuation of CH 315.

Lecture 3 hours/recitation 1 hour

Prerequisite: CH 315

**CH 317 • 3 credits****Physical Chemistry III**

Continuation of Physical Chemistry II, with emphasis on theoretical physical chemistry, including topics in wave mechanics, atomic structure, molecular structure, spectroscopy and statistical thermodynamics.

Lecture 3 hours

Prerequisite: CH 316

**CH 318 • 2 credits****Physical Chemical Measurements I**

Experiments in physical chemistry designed to test established theoretical principles which have been introduced in CH 315, 316 and 317. The experiments provide the student with basic experience in obtaining precise physical measurements of important chemical interest.

Laboratory 4 hours/Lecture 1 hour

Prerequisites: CH 305-7, CH 315

Corequisite: CH 316

**CH 319 • 2 credits****Physical Chemical Measurements II**

Continuation of CH 318.

Laboratory 4 hours/Lecture 1 hour

Prerequisites: CH 305-7, CH 316

Corequisite: CH 317

**CH 320 • 3 credits****Computer Programming in  
Chemistry**

An introduction to FORTRAN IV computer logic. Application of computer programming to general chemistry problems, thermodynamics problems, organic synthesis, simple chemical kinetics and spectroscopy-IR, NMR, mass spectrometry. Polynomial regression. Exponential function fit. Treatment of experimental data. Numerical integration. Solution of differential equations. Solving simultaneous equations-iteration technique. Use of scientific subroutine package.

Prerequisite (or corequisite)

MA 212

This course may not be taken for credit by students who have received credit for CS 261

**CH 352 • 3 credits****Organic Preparations**

A study of the more intricate synthetic procedures of organic chemistry including use of the literature for choice of optimum methods. Lecture 1 hour/Laboratory 5 hours

Prerequisites: CH 252 and CH 266

**CH 362 • 3 credits****Introduction to Biochemistry**

An introduction to the chemical properties of compounds of biological interest; energetics and enzymology. A survey of the metabolism of proteins, carbohydrates, lipids, nucleic acids and other bio-substances.

Lecture 3 hours

Prerequisite: CH 252

**CH 401 • ½ credit****Chemistry Seminar I**

Lectures on current topics in chemistry from guest lecturers and students.

Student may enroll for two semesters out of four in the junior and senior years.

Student attendance at 2/3 of the seminars in both semesters and the presentation of one seminar of approximately 45 minutes is required for a passing grade in the course.

Lecture 1 hour.

**CH 402 • ½ credit****Chemistry Seminar II**

Continuation of CH 401.

Lecture 1 hour.

**CH 421 • 3 credits****Organic Mechanism**

A study of the structure and reactions of organic molecules using molecular orbital and resonance theories.

Lecture 3 hours; offered each fall term

Prerequisite: CH 252

Prerequisite or Corequisite:

CH 315

**CH 425 • 3 credits****Polymer Science and Technology**

The molecular structure and physical and chemical properties of polymers. Industrial aspects of polymers will be stressed and an attempt made to bridge the gap between theoretical and practical consideration in polymer science.

Lecture 3 hours; offered in alternate years

Prerequisites: CH 316, MA 212, PH 112

**CH 431 • 3 credits****Principles of Inorganic Chemistry**

The application of physical chemical principles to inorganic systems. Discussions of the chemistry of the representative elements utilizing thermodynamic principles and the modern theories of bonding and structure. Introduction to coordination chemistry.

Lecture 3 hours; offered each fall term

Prerequisite: CH 316

**CH 432 • 3 credits****Organic Analysis**

Quantitative elemental and group determination on a microscale followed by a study of the systematic identification of organic compounds. Extensive laboratory work on unknowns is required.

Lecture 2 hours/Laboratory 4 hours

Prerequisites: CH 252, CH 266

**CH 442 • 3 credits****Applied Spectroscopy**

A study of spectroscopic methods of determination of structure of organic compounds, especially infrared, ultra-violet, visible, nuclear

magnetic resonance, and mass spectroscopy, with extensive applications to individual cases.

Lecture 3 hours; offered in alternate years

Prerequisite: CH 252, CH 266, and CH 315

**CH 491 • 3 to 6 credits****Introduction to Research I**

Chemistry majors who are doing well in formal course work and who have indicated research potential are encouraged to undertake an original investigation under the direction of a member of the chemistry faculty.

Laboratory 9 to 18 hours

Prerequisite: Departmental permission

**CH 492 • 3 to 6 credits****Introduction to Research II**

Continuation of CH 491.

Laboratory 9 to 18 hours

**CH 510 • 3 credits****Advanced Organic Chemistry**

A study of mechanisms and stereochemical aspects of chemical reactions including a consideration of chemical kinetics and reactivity in terms of modern bonding theory and structural concepts.

Lecture 3 hours; offered each spring term.

Prerequisite: CH 316 and CH 421.

**CH 513 • 3 credits****Advanced Biochemistry I**

A detailed study of the physical chemistry of biomacromolecules; of the thermodynamics, kinetics and mechanisms of enzyme reactions.

Seminar 3 hours; offered alternate years

Prerequisites: CH 362 or BO 234

**CH 515 • 3 credits****Advanced Biochemistry II**

A detailed study of the intermediary metabolism of the major classes of chemical substances and selected topics of molecular biology. Seminar 3 hours; offered alternate years

Prerequisites: CH 362 or BO 234

**CH 517 • 1 credit****Advanced Biochemical Laboratory I**

This course, together with CH 519, introduces the student to a wide variety of biochemical techniques and methods used in biochemical research. Many of the experiments are quantitative and include quantitative separation, characterization and identification of molecules, large and small, by chemical and physical methods. Where possible, marine organisms are used as sources of biological materials. The experiments vary greatly in difficulty and are selected to fit the student's background, interest and experimental competence.

Laboratory 4 hours; offered in alternate years

Prerequisite: CH 362 or CH 513

**CH 519 • 1 credit****Advanced Biochemical Laboratory II**

A continuation of CH 517.

Laboratory 4 hours; offered in alternate years

Prerequisite: CH 517

**CH 520 • 3 credits****Advanced Inorganic Chemistry**

An advanced treatment of the structure and reactivity of inorganic materials. Major emphasis is on molecular orbital theory, the ligand field theory of transition metal complexes, and the kinetics and mechanisms of inorganic reactions.

Lecture 3 hours; offered each spring term

Prerequisites: CH 317 and CH 431

**CH 523 • 3 credits****Thermodynamics**

Development of the general thermodynamic theory from the first and second laws and application to homogeneous and heterogeneous reaction systems.

Lecture 3 hours; offered alternate years

Prerequisite: CH 316

**CH 525 • 3 credits****Theoretical Organic Chemistry**

Molecular orbital theory of organic molecules; applications of molecular orbital theory; reactivity, ESR, Carbon-13 NMR, photoelectron spectroscopy, etc.; orbital symmetry in electrocyclic reactions, cycloadditions, and sigmatropic reactions.

Lecture 3 hours; offered each spring term

Prerequisite: CH 316 and CH 421.



**CH 527 • 3 credits**  
**Electronic Structure of Atoms and Molecules**

Fundamental quantum mechanical principles of electronic structure. Angular momentum, the hydrogen atom problem, helium ground and excited states, electron spin and antisymmetrization, many electron atoms, bonding theory: valence bond and molecular orbital theory, molecular orbital theory of diatomic and polyatomic molecules, applications of group theory to molecular orbital calculations, the self-consistent field method. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 317

**CH 531 • 3 credits**  
**Chemical Kinetics**

Principles and selected topics, including analysis of reaction rates, kinetic and transition-state theories, reactions in gas and liquid phases, unimolecular reactions, fast reactions and enzyme kinetics. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 316

**CH 533 • 3 credits**  
**Statistical Mechanics**

Introduction to the principles and methods of statistical mechanics. Classical and quantum partition functions will be applied to the calculation of thermodynamic properties. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 317

**CH 542 • 3 credits**  
**Quantum Chemistry**

Fundamental concepts of quantum mechanics: wave properties, Schrodinger equation, operators. Basic applications to free particles, harmonic oscillator, hydrogen atom. Perturbation theory and variation method. Applications to many electron systems and time-dependent problems. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 317

**CH 550 • 3 credits**  
**Special Topics in Chemistry**

An advanced treatment of special topics in chemistry with an emphasis on recent developments. The subject matter may vary from year to year. Prerequisite: Permission of the instructor

**CH 551 • 3 credits**  
**Electrochemistry**

The development of the fundamental mathematical relationships upon which electrochemical methods are based. The interpretation of the kinetics of electrode reactions and the transfer of material to and from electrodes under various conditions. The interpretation of data of direct analytical significance generated by the methods and techniques of modern electrochemistry. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 316

**CH 552 • 3 credits**  
**Instrumental Methods of Analysis**

The theory and practice of modern analysis utilizing optical and electrochemical instrumentation in the solution of chemical

problems. Topics discussed include ultra-violet, visible and infrared spectrophotometry; fluorimetry; flame emission and atomic absorption photometry; radiochemistry; thermoanalytical methods; mass spectrometry; analytical applications of nuclear magnetic resonance; voltammetry including polarographic, amperometric, and coulometric methods of analysis. Lecture 2 hours/Laboratory 3 hours; offered each spring term  
Prerequisites: CH 305-307  
Prerequisite or corequisite: CH 316.

**CH 553 • 3 credits**  
**Nuclear and Radiochemistry**

Discussion of the theory and applications of the decaying nucleus. Topics include natural and artificial radioactivity; preparation and decay of properties of radioactive nuclides; interaction of radiation and matter; nuclear models; nuclear fusion; applications to chemistry. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 316

**CH 554 • 3 credits**  
**Molecular Spectra and Molecular Structure**

Discussion of basic principles of molecular spectroscopy; rotational, vibrational and electronic spectra; transition moments and selection rules. Use of spectra to find dissociation energies, force constants, interatomic distances, molecular symmetry and related quantities. Applications to real molecules in conjunction with other techniques for study of molecular structure. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 317

**CH 556 • 3 credits**  
**Magnetic Resonance Spectroscopy**

Introduction to the theory of electron paramagnetic resonance and nuclear magnetic resonance; applications in the study of molecular structure. Lecture 3 hours; offered in alternate years  
Prerequisite: CH 317

**CH 560 • 3 credits**  
**New Synthetic Methods**

Survey of preparation methods in organic chemistry and their application to the synthesis of complex molecules. Lecture 3 hours; offered in alternate years  
Prerequisites: CH 251 and CH 252

**CH 562 • 3 credits**  
**Natural Products**

Isolation, structure elucidation, total synthesis, biogenesis, metabolism and physiological importance of natural products. Lecture 3 hours; offered in alternate years  
Prerequisites: CH 251 and CH 252

**CH 600 • 3 to 6 credits**  
**Dissertation Research**  
Consists of original chemical research and the preparation of a thesis under the direction of a member of the chemistry faculty. This is required for the Master of Science degree in Chemistry. Prerequisite: Departmental permission



# Computer Science

(See faculty listing under Electrical Engineering and Mathematics. See course descriptions under Computer Science in the College of Engineering section.)

The Computer Science Degree Program is jointly administered by the Mathematics Department and the Electrical Engineering Department. The program is designed for students seeking a broad and deep knowledge of the theory, design, and application of computers and information processing techniques. Students will be given a strong background in both computer software and hardware as well as mathematical science related to the computer.





# Economics

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## Faculty and Fields of Interest

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**David E. Berger** • labor and regional economics

**Frances F. Esposito** • Industrial organization and antitrust policy, micro theory, econometrics

**Daniel L. Georgianna** • urban and resource economics

**William V. Hogan (chairperson)** • economic demography, econometrics

**John Ohly** • monetary economics, international economics

**Mona Racine** • development and international economics

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## Economics Major

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A major in Economics provides the student with a unique opportunity to blend a liberal arts education with training in corporate and government decision making. In addition to providing a sound theoretical foundation in economic theory and economic statistics, a major in Economics introduces the student to a variety of applied fields which focus on international, national and regional economic problems. Majors in Economics find employment opportunities with corporations, the federal government and with economic planning and forecasting groups. Economics is a preferred major for entrance into graduate schools of business and an ideal background for training in the field of law. A major in Economics provides strong preparation for teaching social studies. For recommendation for graduate work in economics students need to meet the requirements for honors in economics and take at least 12 hours in mathematics selected from the following: MA 111, 112, 211, 212, 221, 341, 471, 472.

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## Economics Minor

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A minor in Economics may be elected by a student majoring in any other field. Eighteen (18) credit hours are required and must include the following courses: EC 231, 232, 301, 311, (12 credits)

Plus either:

(a) six (6) credit hours chosen from 300 or 400 level courses in Economics or

(b) EC 280 and three (3) hours chosen from 300 or 400 level courses in Economics (students who have taken any other statistics course at the college level may not take EC 280 for credit). Not independent study, directed study, or contract learning may be applied toward the minor. Students are not required to take any such courses.

Students must have, at the time of graduation, an average of at least 2.5 in all courses taken in Economics to qualify for the minor.

Any degree candidate who has between 54 and 84 credits, with a cumulative grade point average of 2.0 and with a 2.5 grade point

average in his or her major, may request admission to the minor. Before being admitted to the Economics minor, students must obtain approval of the Economics Department chairperson. The number of students admitted to the "minor" program will be a function of the department's ability to maintain overall quality programming for both the major and minor in Economics. Students accepted in the minor must complete six (6) upper division credits after being admitted to the minor program.



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## Requirements

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For B.A. in Economics		Semester Credits
EC 280	Basic Economic Statistics	3
EC 301	Price Theory and Policy	3
EC 311	Employment and Income Theory	3
	Economic electives at 400 level	6
	at 300 level	6
	at any level	9
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## For B.A. in Economics with honors

EC 280	Basic Economic Statistics	3
EC 301	Price Theory and Policy	3
EC 306	Topics in Mathematical Economics	3
EC 311	Employment and Income Theory	3
EC 333	Econometrics	3
EC 416	History of Economic Thought	3
	Economics electives at 400 level	6
	at 300 or 400 level	6
	at any level	6
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A grade point average of at least 3.2 in all courses taken in Economics is required for the degree with honors.

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## Economics Courses

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**EC 103 • 3 credits**  
**Cities, Minorities and Poverty**  
 Review and analysis of major social problems faced by cities; emphasis on origin, causes and possible solutions for poverty and minority problems. Freshman and upperclass elective.

**EC 105 • 3 credits**  
**Economic Development**  
 The meaning of economic development. The interaction of economic, social and cultural forces in development. Widely different time periods will be considered. Freshman and upperclass elective.

**EC 107 • 3 credits**  
**Economics of Pollution**  
 Economic approaches to solutions of the pollution problem; the economics of the environment and of self-

contained eco-systems. Freshman and upperclass elective.

**EC 109 • 3 credits**  
**International Economics**  
 An introduction to the world economy. The balance of payments and supply and demand for foreign exchange. The changing role of the dollar. Transnational corporations and their control. Rich vs. poor countries. Comparative advantage and specialization. The functions of the IMF, GATT, and UNCTAD. The European Community. Freshman and upperclass elective.

**EC 111 • 3 credits**  
**Jobs, Employment and Income**  
 Basic analysis of problems of economic growth, job

creation and unemployment; structure of work and jobs will be explored, along with current issues surrounding the government's impact on inflation, taxation and economic planning. Freshman and upperclass elective.

**EC 231 • 3 credits**  
**Economics I**  
 Survey of American economy: its efficiency in allocating resources; price determination in product and resource markets under competition and monopoly; public policy on industrial concentration, agriculture, unions and income inequality. Prerequisite for all 300 and 400 level courses. Freshman and upperclass elective.

**EC 232 • 3 credits****Economics II**

Survey of American economy: determination of GNP and national income; full employment, inflation, economic growth, money, banking and the Federal Reserve System; international trade and balance of payments; less developed economies. Freshman and upperclass elective.

**EC 280 • 3 credits****Basic Economic Statistics**

A first course in statistics. Emphasis is on the applications of statistical methods to problems in economics and social sciences. Nature and sources of economic data are considered. Topics include descriptive statistics, probability, point estimation, interval estimation, hypothesis testing, analysis of variance, regression, correlation, time series and index numbers. Sophomore and upperclass elective.

Economics majors are required to take either EC 280 or EC 333.

Prerequisite: EC 231 and EC 232, or consent of instructor

**EC 301 • 3 credits****Price Theory and Policy**

The theory of price determination, resource allocation and income distribution is integrated with consideration of public policy questions. Sophomore and upperclass elective. Required in economics major.

Prerequisite: EC 231

**EC 304 • 3 credits****Industrial Organization and Antitrust Policy**

Development of antitrust policy in the U.S. Discussion of tying arrangements, vertical integration, price discrimination, market structure and technological innovation, diversification, mergers and patents. Theoretical and empirical discussion of barriers to new competition in American industries.

A Sophomore and upperclass elective.

Prerequisite: EC 301 or permission of Instructor

**EC 306 • 3 credits****Topics in Mathematical Economics**

Mathematical treatment of economic theory. Topics in microeconomics, macroeconomics, general equilibrium, and welfare economics will be considered. Though most models will be deterministic, some stochastic models will be treated.

Required in economics honors major.

Upperclass elective.

Prerequisite: EC 231, EC 232, MA 111, MA 112, or consent of the instructor. Offered in alternate years.

**EC 311 • 3 credits****Employment and Income Theory**

Theories of employment and income determination; the impact of government actions to stabilize economic activity in a market economy.

Upperclass elective.

Required in economics major.

Prerequisite: EC 232 or permission of instructor

**EC 312 • 3 credits****Economic Growth and Stabilization**

Recent macroeconomic policy in the U.S. and other countries as applied to problems of unemployment, inflation, debt management, balance of international payments, growth and productivity.

Upperclass elective.

Prerequisite: EC 311

**EC 331 • 3 credits****Economics of Developing Countries**

Scenarios Integrating social and economic goals. Two-gap models and real transfers; poverty; The World Employment Program and the New International Economic Order Multilateral organizations including the UN, UNCTAD, UNDP and the ILO. Control of transnational corporations. Multilateral vs. bilateral aid. Commodity indexation, buffer stocks and changing terms of trade.

Upperclass elective.

Prerequisite: EC 232

**EC 333 • 3 credits****Econometrics**

Introduction to econometrics including development of basic techniques of bivariate and multivariate linear regression analysis; use of lagged variables and dummy variables in model building; problems in multicollinearity, auto-correlation and heteroscedasticity.

Sophomore and upperclass elective.

EC 280 or EC 333 is required for an economics major.

EC 333 is required for economics honors major. Prerequisite: EC 232, EC 280 (or MA 231 and MA 232) or permission of instructor

**EC 335 • 3 credits****Resource Economics**

The economics of renewable and non-renewable; common and private resources. The focus of this course will be comparison between markets and planning in the use of resources. The international distribution and use of resources will also be covered. The fishing industry in New England will be a featured subject.

Prerequisite: EC 231

**EC 342 • 3 credits****Labor Economics**

The labor force. Wages in competitive and non-competitive markets. Wage structures. Inequalities and discrimination. Impacts of unions and social standards. Indexation, inflation and unemployment.

Sophomore and upperclass elective.

Prerequisite: EC 232

**EC 343 • 3 credits****The Economics of Sex and Race Discrimination**

A course in the theory of labor markets and the problem of discrimination. Current problems facing women and minorities will be examined. Existing programs and trends will be explored. Prerequisite: EC 231 and/or EC 232 or permission of instructor



**EC 352 • 3 credits****Economics and Technology**

The interaction of economics and technology. Invention and economic feasibility as forces in technological change.

Invention, innovation and research development within the firm.

Sophomore and upperclass elective.

Prerequisite: EC 231 and 232.

**EC 416 • 3 credits****History of Economic Thought**

The development of economic thought with emphasis on the period beginning with Adam Smith and ending with J. M. Keynes. Methodological issues in economics are also considered, and questions concerning the current status and the future directions of the profession are addressed. An upperclass elective.

Required in economics honors major.

Prerequisite: EC 301

Offered in alternate years.

**EC 417 • 3 credits****Economics and Population Analysis**

The measurement and major tax instruments, demographic variables, fertility, mortality, and migration, and their role in determining the growth and age distributions of populations. Applications include historical demography, the relation of population growth to economic development, urban concentration and crowding, environmental deterioration, the aging of populations, and zero population growth. Population policy and prospects for both the near future and the longer run are also considered. Upperclass elective.

Prerequisite: EC 231 and EC 232; or consent of instructor.

This is a multidisciplinary course, and students at the junior or senior level in majors other than economics are encouraged to consider the course even though they may not have taken EC 231 and EC 232.

**EC 431 • 3 credits****International Trade**

Analytical development of the standard theory of international trade and of new trade theories and their application in predicting the nature of trade patterns and the gains from trade. The political economy of trade policy: free trade versus protectionism and the theory of custom unions; the effect of integration on the structure of intra and extra-regional trade; the creation of integrated program on commodities and its effect on the structure of trade. Upperclass elective.

Prerequisite: EC 231 and 232

**EC 432 • 3 credits****Public Finance**

The theory of public goods and collective choice, incidence and distortions of political economy of program evaluation.

Upperclass elective.

Prerequisite: EC 301 or permission of instructor

**EC 433 • 3 credits****International Monetary Economics**

Analyzes the structure and operation of the international monetary system and the role of exchange rates in eliminating payments disequilibria. Evaluates the performance of flexible exchange rates, and the effects of exchange rate management. Describes the linkages between external credit markets (Euromarkets) and domestic money markets and the nature of public policy in the international money markets.

Upper class elective.

Prerequisite: EC 231, and EC 232

**EC 451 • 3 credits****Problems in Regional Growth**

Analysis of regional growth and stagnation with special emphasis on New England Development strategies and programs will be explored.

Upperclass elective.

Prerequisite: EC 232 or permission of instructor

**EC 452 • 3 credits****Manpower and Regional Development**

Review of labor market problems and programs in growing and depressed regions, with special emphasis on New England. Attention focused on the impact of education, training and government manpower programs.

Upperclass elective.

Prerequisite: EC 232 or permission of instructor

**EC 453 • 3 credits****Work, Jobs and Income**

Study of changes in the labor force, the impact of labor market processes and how they effect work motivation, job performance and income distribution.

Upperclass elective.

Prerequisite: EC 232 or permission of instructor

**EC 461 • 3 credits****Urban Economics**

The political economy of cities, intraurban utilization of space, the economics of urban problems and policies.

Upperclass elective.

Prerequisite: EC 301 or permission of instructor

**EC 501 • 3 credits****Theory of the Household and the Firm**

Analytical development of the following topics: the theory of utility and preference and consumer behavior, the theory of production (one and two variable inputs) and cost, the theory of the firm (perfect competition, monopolistic competition, oligopoly and monopoly), the theory of distribution and the theory of general equilibrium.

For graduate students.



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## Faculty and Fields of Interest

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**Hamilton Brush** • arts of language and communication instruction; elementary and secondary school education methods; supervision; group facilitation; English linguistics, literature and composition

**Walter Cass** • philosophical historical, and psychological foundations of education; group dynamics and interpersonal relations; adult education; methods of language instruction

**Catherine Downey** • elementary education; psychology; creative aspects of teaching; student teaching

**Patrick Foley** • social foundations of education; consumer education

**Cynthia Kruger (chairperson)** • curriculum development (K-12); training teachers; behavioral objectives-needs assessment, model building; bilingual education curriculum

**William Philbrick** • the spectrum of special education for children with special needs

**William Rotondi** • counseling and psychotherapy: individual and group

**Lawrence Singleton** • tests and measurements; educational research; evaluative research

**Doris Thibault** • reading; mathematics; individualized instruction; elementary education; curriculum development — elementary

**Milton Young** • transpersonal education; life-long personal growth; humanistic education; in-service education; innovations and change

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## Statement of Purpose

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By means of course work, field experiences, and close student-faculty cooperation, the SMU Education Department encourages students to desire to become dedicated, innovative teachers and to understand and appreciate the problems and potential of the American education system, with a view to their becoming more effective citizens and parents in our society. In the process of achieving this purpose, students who elect the complete program become eligible for teacher certification in the Commonwealth of Massachusetts and in most other states.

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## Department Philosophy

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The SMU Education Department believes that good teachers are essential role models for children in the on-going development of a dynamic democratic society. For this reason, the Department encourages students to become proficient in the various important teaching technologies and, also, to become as open and self-actualizing as their personalities allow. In keeping with this aim, the members of the Education Department faculty attempt to share and develop with students an enthusiastic interest in educational research and its findings while also demonstrating in action the importance the Department places on the democratic process, the scientific method, cooperative interpersonal relationships, and aesthetic values. The Department realizes that its philosophy is really a matrix of goals which are seldom perfectly achieved in human

experience. In recognition of this fact, and in keeping with the meaning of the goals themselves, the Department encourages a continuous evaluation of its work by students and faculty members.

At the secondary level, focus is upon mastering an academic discipline to be taught while offering those professional education courses which contribute to a distinctively substantive and liberalizing dimension.

At the elementary level, focus is upon gaining a perspective of the role of the elementary school in American education, particularly in the southeastern Massachusetts region; plus learning and practicing specific methods of elementary-school teaching and classroom management which reflect the values of both traditional and more recent trends in elementary education.

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**Requirements: Secondary Level**

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**First Year****Semester Credits**

ED 100	Early Field Experience	3
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**Second Year****Select One**

ED 201	Philosophy of Education	3
ED 210	History of Education	3
ED 409	Sociology of Education	3

**Select One**

ED 205	Human Development and Learning	3
PY 301	Adolescent Psychology	3

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**Third Year**

ED 306	Curriculum Development in the Secondary School	3
ED 307	Teaching Methodology in the Secondary School	3

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**Fourth Year**

ED 415	Teaching Internship Secondary	12
ED 417	Education Workshop in Secondary Teaching (Concurrent with ED 415)	3
ED 410	Tests and Measurements* (*Not required but strongly recommended for Secondary Education students.)	3

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**Requirements: Elementary Level**

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(All courses must be taken in the given sequence with prerequisites followed)

First Year		Semester Credits
ED 100	Early Field Experience	3
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<b>Second Year</b>		
<b>Select One</b>		
ED 201	Philosophy of Education	3
ED 210	History of Education	3
ED 409	Sociology of Education	3
<b>Select One</b>		
ED 205	Human Development and Learning	3
ED 310	Understanding the School Child	3
PY 201	Child Psychology	3
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<b>Third Year</b>		
ED 303	Elementary Curriculum Methods I	3
ED 304	Elementary Curriculum II	6
ED 420	Teaching Reading in the Elementary School (To be taken prior to the internship.)	3
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<b>Fourth Year</b>		
ED 414	Teaching Internship Elementary	12
ED 416	Education Workshop in Elementary Teaching (Concurrent with ED 414.)	3

In their senior year, students should plan on taking a fifteen-week supervised internship. Concurrently, they will be required to attend a workshop which will meet bi-weekly for two hours.

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**Education Courses**

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**ED 100 • 3 credits****Early Field Experience:  
Section A**

This program will provide an opportunity for a career exploration. It will help trainees identify their area of interest, early childhood or elementary. Moreover, it is intended that the student become better acquainted with the current issues and problems confronting the educators. This course should be taken during the second semester of the sophomore year.

**ED 100 • 3 credits****Early Field Experience:  
Section B**

Early Field Experience is a middle, junior, or senior high-school practicum that provides an opportunity for career exploration and confirmation of specific grade levels and subject areas. The course will be taken during the second semester of the sophomore year and will be mandatory for the initial acceptance into the full-fledged internship program.

**ED 132 • 3 credits****Organization of Library  
Material**

This course provides a comprehensive treatment of books and libraries to emphasize the variety of library materials, their organization for retrieval of information, and their potential for effective use.



**ED 201 • 3 credits****Philosophy of Education**

This course presents an introduction to major issues and problems in philosophy of education. Examination of some of the traditional areas of philosophical concern, and their relevance to the teacher-learning process is undertaken.

**ED 202 • 3 credits****Introduction to Early Childhood Education**

The primary purpose of this course is to introduce students to varied education programs in existence for young children. Students are expected to become familiar with current theories in child development and the relationship of these theories of education programs.

**ED 205 • 3 credits****Human Development and Learning**

A study of central developmental tendencies and stages as these underlie the unfolding of human potentialities. Consideration will be given to those conditions and factors which influence learning and forgetting. The nature of intelligence, the nature of learning, and the meaning of personality will be examined in the context of the teacher-learning process.

**ED 210 • 3 credits****History of Education**

This course analyzes the history of education in American culture in the context of social and intellectual developments. Emphasis will be given to the development of higher education, especially to the emergence of the university in America.

**ED 220 • 3 credits****Interpersonal Communication**

Effective communication occurs through a process of human interaction. Students in this course study the nature of that interaction, in theory and experientially, through examination of the parts of the process — person, message, environment, and relationship.

**ED 230 • 3 credits****Consumer Education**

An introduction to current issues and problems in consumer education. Among the areas to be covered are: truth-in-lending laws; deceptive pricing; door-to-door sales; repairs and services; automobile transactions; insurance; over-the-counter and prescription medicines; home-improvement transactions; business opportunities; buying a house; savings and investments.

**ED 303 • 6 credits****Elementary Curriculum Methods A and B**

This course is designed to present the organization of the curriculum in the elementary school. It includes, as part of the course, the opportunity for observation, basic methods and techniques of teaching and the uses of curriculum materials. Includes a study of the theory and application in the classroom for Math and Science. This course includes field experience (observation and tutoring).

**ED 304 • 6 credits****Elementary Curriculum Methods II**

This course is designed to extend the study of basic methods and techniques of teaching into the specific areas of Language Arts, Social Studies, Art, Music, and Health Education. It is planned for those who will be teaching in the elementary school. This course includes field experience (tutoring in area schools).

**ED 306 • 3 credits****Curriculum Development in the Secondary School**

This course will introduce students to curriculum patterns, terminology, concepts, and trends associated with curriculum development and implementation in middle, junior, and high schools. Students will be required to undertake limited research and a field experience in the given levels. ED 201 and ED 205 are prerequisites for ED 306 which must be given prior to ED 307.

**ED 307 • 3 credits****Teaching Methodology in the Secondary School**

This course encourages a thorough understanding of the traditional and innovative strategies utilized in middle, junior and senior high schools. Students are required to prepare a unit, lesson plan and materials in their subject areas. They will also be required to undertake an extensive practicum in a selected grade level and/or subject area. ED 306 is prerequisite for ED 307.

**ED 308 • 3 credits****Creative Writing and Teaching**

Creative and functional writing are two of the most important tools in elementary education. Skills and techniques in motivation will be the main theses in this course.

**ED 309 • 3 credits****New Curricula in the Secondary School**

An in-depth study of the new curricula in the disciplines of the middle, junior and senior high school forms the core of this course. A knowledge and understanding of the current curriculum development projects and research in the respective disciplines of students enrolled along with the development and implementation of innovative materials are the major goals. This course can be utilized in completing teacher certification requirement.

**ED 310 • 3 credits****Understanding the School Child**

This course is designed to study intensively the dynamics of working with children from pre-school through secondary school age. It includes the psychology of the patterns of behavior and growth and development, and their application in the classroom situation. (Preferably for those interested in education. Permission of Professor for others).

**ED 312 • 3 credits**

**Teaching the Disadvantaged**  
Characteristics and problems of the disadvantaged student in both the elementary and secondary grades and ways of meeting his educational needs and interest will be the concern of this course. Emphasis will be placed on innovations and appropriate materials and activities.

**ED 313 • 3 credits****Activities Workshop in Elementary School**

Workshop is designed to develop creative teaching and learning. Various techniques, uses of materials and creative approaches for instruction, along with activities for the children, will be included. All areas of the curriculum will be covered.

**ED 315 • 3 credits****Reading Improvement in the Secondary School**

A knowledge and an understanding of corrective and developmental reading form the core of this course. Causes of reading difficulties among middle, junior and senior high-school students is discussed along with the effective means of remedying these difficulties. A knowledge of the study skills needed by middle, junior, and senior high-school students and strategies for teaching these skills is also stressed.

**ED 316 • 3 credits****Diagnostic and Remedial Reading Techniques In Reading**

This is a basic course for the classroom teacher. It will investigate factors contributing to reading disabilities, methods of diagnosis and treatment of reading problems.

**ED 318 • 3 credits**  
**Analysis of Reading Difficulties**

This is an advanced course for experienced teachers. It is designed to give the classroom teacher special skill in analyzing and removing reading deficiencies.

**ED 322 • 3 credits****Behavioral Analysis and Classroom Management in Special Education**

This course delineates methods and techniques of obtaining useful and positive classroom behavior from children. Analysis of basic reaction patterns and utilization of appropriate compensatory measures are stressed.

**ED 331 • 3 credits****Methods of Teaching a Foreign Language**

This course presents an introduction to the objectives, principles and methods of teaching a second language, and a consideration of classroom procedures at different levels. The construction, utilization and evaluation of instructional materials are included.

**ED 333 • 3 credits****Exceptional Child I**

This course is devoted to the problems of communications and understanding in children as exemplified by the labels "deaf", "hard of hearing", "aphasic", "physically handicapped", and "speech and hearing handicapped".

**ED 334 • 3 credits****Exceptional Child II**

This course considers problems in children and adults as represented by the labels "emotionally disturbed", "mentally retarded", and "learning disabled".

**ED 335 • 3 credits****Influences of Pre- and Post-natal Deviations on Growth and Learning**

This course delineates the many factors affecting the organism from conception through early childhood, details the effects of deviations, and specifies the possible sequelae in behavioral and learning patterns.

**ED 336 • 3 credits****Transpersonal Education**

The goal of Transpersonal Education is an understanding of the concurrent developments in the analytical and intuitive modes of functioning, an experience-based learning environment that supports a theoretical understanding and internal awareness of these concurrent developments. Practice will be provided for the use of this mode. Content includes the theory of left and right cerebral functions in children and adults; an examination of altered states of consciousness; and process of shifting from outer to inner states through the use of techniques such as fantasy, relaxation, music, body movement, sensory stimulation, and natural phenomena.

**ED 338 • 3 credits****Recent Trends in Elementary Education**

The main focus of this course will be on educational options. Current research will be studied as will its application to the contemporary classroom.

**ED 339 • 3 credits****Educational and Psychological Measurements**

This course is an introduction to elementary principles of statistical analysis as well as to those educational and

psychological instruments and methods used in the measurement and evaluation of the psychological characteristics of people.

**ED 347 • 3 credits****Affective Education in the Classroom**

This course involves experiential and didactic learning of how to teach values clarification, selfawareness, and problem solving.

**ED 350 • 3 credits****Educational Research**

This course will serve as a general introduction to contemporary practices and policies in educational administration and supervision. Instruction will be by lecture, case studies, and student reports. Among the topics to be covered are curriculum planning and design, staff organizations and relationships, and student and community relationships.

**ED 353 • 3 credits****Education: Administration and Supervision**

This course will serve as a general introduction to contemporary practices and policies in educational administration and supervision. Instruction will be by lecture, case studies, and student reports. Among the topics to be covered are curriculum planning and design, staff organization and relationships, and student and community relationships.

**ED 360 • 3 credits****Activities Workshop in the Elementary School II**

This course is designed to develop creative teaching and learning. Included will be various techniques, uses of materials and creative approaches for instruction, along with activities for child-



ren. All areas of the curriculum will be covered.

**ED 362 • 3 credits**  
**Analysis of Children's Behavior and Learning in Special Education**

Directed toward strengthening the abilities of the teacher to assess "the child before you," utilizing behavioral observations in class, varieties of behavior protocols, informal evaluations, and both criterion-referenced and norm-referenced techniques.

**ED 364 • 3 credits**  
**Development of Individualized Educational Plans**

Selecting, adopting and designing materials for instruction in curriculum requirements, based on detailed assessment and evaluation of the child.

**ED 366 • 3 credits**  
**Principles of Guidance**

This course examines and analyzes the development of significant trends and directions of guidance services and issues and challenges confronting the practitioner of guidance.

**ED 367 • 3 credits**  
**Principles of Counseling: Theory and Practice**

This course is an intensive study of counseling techniques and processes through the use of interviews, case studies, tapes and films.

**ED 370 • 3 credits**  
**Urban Education**

This course will explore educational problems which have been encountered by the urban child. There will be special emphasis on institutional racism, on teachers' attitudes and on studies that have been utilized by the academic

community to reinforce the concept that some children are cognitively inferior to other children.

**ED 391 • 3 credits**  
**Reading Workshop**

The purpose of this workshop is to consider the various means of individualizing reading instruction. The skills involved in the reading process will be discussed. Teachers will be encouraged to develop a resource file of materials and activities for reinforcing the basic reading skills.

**ED 396 • 3 credits**  
**Instructional Media**

Knowledge and application of diversified audio-visual equipment and techniques for classroom teachers will form a core of this course. A workshop approach utilizing the Audio-Visual Center at SMU will lead to more effective use in the classroom.

**ED 402 • 3 credits**  
**Tests and Measurements**  
This course is concerned with development and use of tests; application of measurement devices in teaching, evaluation and research; assumptions of testing and observation; development and utilization of objectives; and basic statistics of measurements. This course is required by most graduate schools of education.

**ED 403 • 3 credits**  
**Applied Aesthetics for the Classroom**

This course will act as a guide for elementary teachers in becoming comfortable with the visual arts, film, and theatre/television media. It will meet the needs of the classroom teachers in the

most pressing challenge confronting educators today - learning how to become effective communicators.

**ED 406 • 3 credits**  
**Seminar in Guidance and Counseling I**

The work of this seminar consists of an analysis and discussion of contemporary counseling procedures in relation to personality and behavior. The theoretical principles and practical applications of various modalities will be examined in association with sound/film demonstrations of the related practices.

**ED 407 • 3 credits**  
**Seminar in Guidance and Counseling II**

This seminar entails advanced work and research in matters that relate to Guidance and Counseling. The seminar will be organized into topics clustering around the interests of students. Each will undertake a research project followed by a presentation to the group for examination and criticism.

**ED 409 • 3 credits**  
**Sociology of Education**

The effects on the school program of social class, family and community pressures, and changing patterns and standards of life in American society are studied. Basic understanding of these pressures and patterns are developed to enable the teacher to become aware of and sensitive to the impact of social forces upon children.

**ED 410 • 3 credits**  
**Educational Measurements**  
The primary purpose of this course is to assist students to evaluate research conducted in the area of

descriptive and inferential statistics. Concepts such as central tendency, correlation, regression, variability, T-test, analysis of variance, CHI-square, and hypothesis testing are a few of the areas that will be discussed in depth.

**ED 411 • 3 credits**  
**Children's Literature in the Elementary School**

Since the "Right to Read" is all inclusive, participants will survey all reading available for children. Part of the time will be devoted to writing children's stories (including criteria, approaches, etc.).

**ED 413 • 3 credits**  
**Teacher Self-Evaluation and Supervision**

In this course participants will clarify their teaching goals and set criteria for measuring the extent to which their goals are being met. Teams of participants will develop their skills in systematically observing and analyzing the process and product of teaching-learning situations. There will be audio and/or video taping, as well as peer interaction and coding systems.

**ED 414 • 12 credits**  
**Internship in Teaching (Elementary)**

This internship is a fifteen-week, full-time classroom experience under the direction of university faculty and cooperating classroom teachers.

**ED 415 • 12 credits**  
**Internship in Teaching (Secondary)**

This internship is a fifteen-week, full-time classroom experience under the direction of university faculty and cooperating classroom teachers.



**ED 416 • 3 credits**  
**Workshop In Elementary Teaching**

This workshop includes small group meetings, workshops and discussions, with university faculty and other key school personnel, of critical incidents and issues arising from and related to the interns' actual teaching experiences. It is a required part of the Teaching Internship.

**ED 417 • 3 credits**  
**Workshop in Secondary Teaching**

This workshop includes small group meetings, workshops and discussions, with university faculty and other key school personnel, of critical incidents and issues arising from and related to the interns' actual teaching experiences. It is a required part of the Teaching Internship.

**ED 420 • 3 credits**  
**Reading in the Elementary Schools**

The purpose of this course is to develop some understanding of the complex reading process. Instructional materials and organizational patterns to promote growth in basic abilities will be discussed.

**ED 422 • 3 credits**  
**Sensitivity Training for Teachers**

This course presents a practical laboratory experience in the study of the behavior of groups and the behavior of individuals within a group.

**ED 426 • 3 credits**  
**Workshop In Early Childhood Education**

In this course students will be expected to create and use learning experiences in art, music, language, literature, drama, nature study and human interrelationships. Prerequisite: Any course in Early Childhood Education, current work with young children, or permission of instructor.

**ED 432 • 3 credits**  
**Testing for Teachers**

This course prepares teachers to make informal tests for students at the elementary and secondary level.

**ED 433 • 3 credits**  
**Workshop in Transpersonal Education**

This workshop offers an experienced-based learning environment for an intensive exploration of intuitive (left hemisphere) aspects for the individual, as well as techniques useful in working with children and adults. Content includes a study of a new image of man; alternative states of consciousness; impulses toward a harmonious approach to living, (balancing the interaction of the two hemispheres); recent physiological research (such as bio-feedback); and creativity through shifting focus from external to internal awareness. Each student is expected to do an in-depth exploration of at least two approaches for achieving a balance in life functions. Prerequisite or corequisite: Transpersonal Education.

**ED 446 • 3 credits**  
**Special Needs Child II**  
This course concerns the needs of handicapped children with specific reference to problems in reading; providing individualized techniques, practices and methodologies to fit the assessed needs.

**ED 451 • 3 credits**  
**Contemporary Issues and Challenges**

This course is designed to help students understand contemporary problems such as drugs, venereal disease, sexism, racism, along with other related areas.

**ED 455 • 3 credits**  
**Behavior and Learning**  
This course examines various learning variables conceptualized by psychoanalytic and operant learning theory.

**ED 457 • 3 credits**  
**Education and Mental Health**  
This course will examine the issues and techniques involved in the early detection, diagnosis, and evaluation of mental, moral, social and educational problems, including learning disabilities.

**ED 460 • 3 credits**  
**Arts for the Elementary Class**  
A number of fundamental techniques will be presented experientially to students preparing to teach grades K-6 that will help a classroom teacher who is not a specialist in art. Various principles of design and kinds of materials available inexpensively are introduced. The range of complexity in performance is based upon the developmental levels of children. The course stresses the integration of art activities with other elementary curriculum disciplines.

**ED 485 • 3 credits**  
**Career Information and Placement**  
This course will include theory and research in career development, functions of occupational information in guidance, role of the counselor in placement, and models for an effective placement office.

**ED 495 • 3 credits**  
**Independent Study**  
Terms and hours will be arranged. Confer with appropriate members of the Education Department.

**ED 496**  
**Directed Study**  
Confer with Associate Dean of Students.

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## Faculty and Fields of Interest

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**Marle Ahearn** • American literature

**Nathaniel Atwater** • Anglo-Saxon and medieval literature, Chaucer

**Americus Cleffi** • world literature, creative writing

**Tish Dace** • contemporary drama, Black drama, women's studies, comparative drama

**Genevieve Darden** • journalism, world literature

**Raymond Dumont** • composition theory, professional writing

**Louise Habicht** • American literature, Southern renaissance

**Everett Hoagland** • Black literature, creative writing

**Vernon L. Ingraham** • modern British literature, Irish literature, modern poetry

**Barbara Jacobskind** • American literature, women's literature

**Joan Kellerman** • advanced composition, remedied writing

**John M. Lannon** • advanced composition, professional writing

**Richard Larschan** • 18th century English literature

**Celestino D. Macedo** • composition and rhetoric

**James E. Marlow** • Victorian novel, 19th century British literature

**Margaret Miller** • 19th century novel, women's literature

**James M. Nee** • comparative literature, film

**William P. Nicolet** • 16th century British literature, literary criticism

**Margaret Panos** • American literature, writing instruction

**Richard Reils** • romanticism, Old English, experimental novel

**Alan Rosen** • Victorian literature, bibliography

**Yvonne Sandstroem** • 17th century British literature, Milton

**Roger Sorkin** • Shakespeare, comparative drama, contemporary drama

**Edwin J. Thompson (chairperson)** • modern novel, contemporary literature

**Robert Waxler** • romanticism, Blake

**Charles White** • American literature, film

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In scheduling its courses, the Department recognizes its obligations to its English majors — a group that includes those who intend to go on to graduate study, those who intend to enter the teaching profession, and those who plan careers in

such areas as public relations, editorial work, journalism, creative writing, personnel work, and the like. The department also recognizes its obligations to non-English majors — those students who elect English courses in order to gain

some acquaintance with the rich cultural heritage that English, American, and Comparative Literature provide, and those who, through advanced courses in writing, wish to improve their powers of communication.

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## English Major

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To receive a degree with a major in English, the student must have demonstrated his ability to read intelligently and perceptively in such genres as imaginative literature in fiction, poetry, and drama; in works of literary

criticism and literary history, and in works dealing with the nature of language itself. A candidate must also demonstrate the ability to write effectively (for those whose chief interest is in practical or creative writing,

the Department offers an option), to use a library efficiently and honestly, to deal critically with generalizations about historical periods and genres, and to handle a variety of critical questions with some maturity.

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## Requirements

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		Credits
ENG 300, 301, 302	A three-semester sequence of British Literature from Beowulf to Hardy and taken in the proper sequence	9
ENG 303	Survey of American Literature I	3
ENG 319	Shakespeare	3
	A Seminar	3
	9 additional credits taken from "300" offerings	9
	A minimum of 12 credits drawn from any upper level English offering (that is, "200", "300" or "400")	12
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## Writing Concentration

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Because of the continuous demand for those skilled in the art of communication, the Department also offers a concentration in writing. The following are the requirements:	<p>1. ENG 300, ENG 301, ENG 302 (Survey of British Literature - must be taken in sequence).</p> <p>2. ENG 203 - Survey of American Literature I.</p> <p>3. A minimum of 3 additional credits at the "300" level.</p> <p>4. ENG 260 - Intermediate Composition</p> <p>5. 12 credits (including 3 credits at the "400" level) drawn from the English Department's writing course offerings.</p>	<p>6. An additional 9 credits in literature courses offered by the English Department (level unspecified) for a total of 39 credits.</p> <p>Note: Additional writing courses and/or English non-literature English courses (e.g., film, speech, linguistics) may be elected but may not be offered in fulfillment of the 39 credit minimum.</p>
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## Writing Courses Offered:

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ENG 260	Intermediate Composition
ENG 261	Techniques of Critical Writing
ENG 262	Journalism I
ENG 263	Journalism II
ENG 264	Feature Story and Article Writing
ENG 266	Professional Writing (This course is offered with a variable sub-heading such as "Technical Writing" or "Business Writing".)
ENG 267	Creative Writing: Poetry
ENG 268	Creative Writing: Fiction
ENG 269	Creative Writing: Drama
ENG 450	Advanced Poetry Workshop
ENG 451	Advanced Fiction Workshop
ENG 454	Advanced Journalism Workshop

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## Honors Program

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### 1. Qualifications for Admission:

Minimum grade point average in English of 3.3, plus recommendation by a member of the department willing to serve as sponsor.

### 2. Program

A closely supervised, two semester (6 credit) investigation into some literary topic devised largely by the student, and requiring a substantial amount of independent reading and library-based research.

The program consists of two separable halves:

1. The first part is intensive reading and study in the subject area of the student's proposal, based on the agreed upon book list. By the end of Semester I the student must (1) present a written proposal for an Honors Thesis, and (2) take a written examination in the area of study — both to be administered and graded by the faculty sponsor. (In this way the student may receive 3 credits and a grade even if he or she decides not to continue in the full program.

Also, based on the outcome of written work to date, the faculty member can assess whether or not to permit the student to continue — a grade of 'B' or better is required.)

2. In the second semester the student proceeds to the Honors Thesis itself, and a grade is awarded on the basis of the final paper. However, "Honors" itself would be awarded separately, according to criteria set forth below. (Hence it will be possible to make independent decisions on the awarding of "Honors," or mere credit.)

### 3. Criteria and Methods of Evaluation:

A three person faculty committee — preferably one of them a specialist in the field under investigation — will judge all written work and administer an oral examination on the subject of the Honors Thesis (the student is entitled to select one of his/her examiners). This committee will then award "Honors" or not, on the following basis: (1) overall

seriousness of purpose; (2) mastery of scholarly methodology; (3) sophistication of insights achieved; (4) ability to relate findings verbally.

### 4. Implementation:

Each spring the Department will inform all Junior English Majors with the minimum grade point average that they qualify to participate in the Honors Program, and indicate what the program entails. They will be responsible for selecting their own sponsors; and no Department member will be expected to direct more than one Honors student per year.

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## English Courses

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Note: ENG 101 and ENG 102 are prerequisites for all upperclass English courses unless otherwise noted.

**ENG 101 • 3 credits**  
**Freshman English I**

The aim of the course is to develop the student's ability to write clear, correct, effective English that reflects logical thinking and mature judgement.

**ENG 102 • 3 credits**  
**Freshman English II**

The primary purpose of ENG 102 is to introduce the student, through a series of readings in fiction, drama, and poetry, to the basic principles of literary analysis.

**ENG 111 • 1 credit**  
**Journalism Laboratory I**

Prerequisite: Permission of instructor.

**ENG 112 • 1 credit**  
**Journalism Laboratory II**

Prerequisite: Permission of instructor.

**ENG 113 • 1 credit**  
**Journalism Laboratory III**

Prerequisite: Permission of instructor.

**ENG 200 • 3 credits**  
**Studies in Literature**

Selected readings dealing with a special topic selected by the instructor.

**ENG 201 • 3 credits**  
**Major British Writers**

Selected works, from several genres, of outstanding British authors.

**ENG 202 • 3 credits**  
**Major American Writers**

Selected works, from several genres, of outstanding American authors.

**ENG 203 • 3 credits**  
**Survey of World Literature I**

A study of selected masterpieces from the Golden Age of Greece to the Renaissance.

**ENG 204 • 3 credits**  
**Survey of World Literature II**

A study of selected masterpieces from the Renaissance to the present.

**ENG 205 • 3 credits**  
**Science Fiction**

A study of typical works of fantasy and speculation.

**ENG 206 • 3 credits**  
**Detective Fiction**

A study of famous mystery, suspense, and detective fiction.

**ENG 207 • 3 credits**  
**Narrative Literature**

Selected works of long and short fiction as illustrative of the characteristics of the genre.

**ENG 208 • 3 credits**  
**Myth and Literature**

An exploration of the role of myth in the structure and meaning of poetry, fiction, and drama.

**ENG 209 • 3 credits**  
**The Bible as Literature**

Selections from the Old and New Testaments.

**ENG 210 • 3 credits**  
**Literature of the American West**

The course explores the myths and realities of the American West (west of the Mississippi) as they are reflected in literature — e.g.: the cowboy, westward expansion, the Spanish conquistadors.

**ENG 211 • 3 credits**  
**The American Dream**

A study of the meaning of success as reflected in works ranging from those of Benjamin Franklin and Horatio Alger to Arthur Miller.

**ENG 212 • 3 credits**  
**American Literature and the Arts**

The course relates the literary and artistic expressions of American culture so that the literature is enhanced by an examination of the art and architecture. The course investigates, through literary works and discussions of representative artists and architects, the role of the arts and of the artist as creator, carrier, and critic of the American culture.

**ENG 213 • 3 credits**  
**Economic Themes in American Literature**

The study of the way in which American writers have treated economic themes — materialism, the dreams of success, the haves and have-nots, trade unionism. Writers range from Franklin to Howells and Steinbeck.

**ENG 214 • 3 credits**  
**Black American Literature**

The course explores the variety and range of black writing in America. Emphasis is placed on the work of W.E.B. Dubois, Langston Hughes, Richard Wright, Ralph Ellison, James Baldwin, and others.

**ENG 215 • 3 credits**  
**West Indian and African Literature**

A study of important and innovative West Indian and contemporary African writers.

**ENG 216 • 3 credits**  
**Comedy and Satire**

A study of the nature and purpose of comic and satirical writing — from Aristophanes to Swift and Sheridan.

**ENG 217 • 3 credits**  
**Greek Myth and Drama**

An exploration of the role of myth in the creation of the plots of Aeschylus, Sophocles, Euripides, and Aristophanes.

**ENG 218 • 3 credits**  
**Revolution and Literature**

A study of writers whose work reflects the nature, methods, purpose, and consequences of dissent.

**ENG 219 • 3 credits**  
**Classicism and Romanticism**

The course places in contrast the two major modes of thought in Western Civilization and attempts to show what part each has played in the development of Western man in the creation of major works of literature and the formation of individual personality. Analogous examples from music, painting, sculpture, and architecture will be considered.

**ENG 220 • 3 credits**  
**British Literature and the Arts**

The course relates the literary and artistic expressions of British culture throwing new light on literature through an examination also of art and architecture.

**ENG 221 • 3 credits**  
**Special Topics in Comparative Literature**

The course is constructed on a topic selected by the instructor.

**ENG 222 • 3 credits**  
**Ibsen, Strindberg and Bergman**

**ENG 223 • 3 credits**  
**Fantasy Literature**

**ENG 224 • 3 credits**  
**Jewish Literature**

**ENG 245 • 3 credits**  
**Images of Women in Literature**

A study of archetypes and stereotypes of women in literature from the ancient world to the present in an attempt to reevaluate traditional literary criticism and the way authors have used images of women to create character, plot, etc.

**ENG 246 • 3 credits**  
**Women Writers**

The study of literature by and about women, this course examines the relationship between the woman writer and her work, including such questions as "Is there a feminine style?" "Are there certain themes to which women are drawn?" "What has been the role of women writers in the development of various genres?"

**ENG 247 • 3 credits**  
**Special Topics in Women's Literature**

The course explores a topic selected by the instructor.

**ENG 250 • 3 credits**  
**Introduction to Poetry**  
Examination of a poem's meaning and the devices used to develop that meaning such as symbolism, connotation, and figures of speech. Also consideration of metre and rhyme and of such distinctive forms as the sonnet, elegy, ode, and ballad.

**ENG 251 • 3 credits**  
**Introduction to the Short Story**

A consideration of examples of short fiction selected to illustrate the history, development, and modus operandi of the genre.

**ENG 252 • 3 credits**  
**Introduction to the Novel**

Using selected novels, the course aims to teach the student how to read a work of fiction, to become acquainted with the various types of novels, and to learn something about the history of the novel as a genre.

**ENG 253 • 3 credits**  
**Introduction to Drama**

The aim of the course is to teach the student how to read a play and to become acquainted with the nature and methods of tragedy, comedy, melodrama, tragicomedy.

**ENG 254 • 3 credits**  
**The Art of Biography**

A study of the most significant biographical writing from antiquity to the present time. The student will be expected to learn discrimination among various methods by which a biographer recreates human life and character.

**ENG 255 • 3 credits**  
**The Structure of Language**

Provides students with a basic working knowledge of phonology (systems of sounds), morphology (word structure) and syntax (sentence structure). Includes also an examination of various social and regional dialect patterns and requires of students the completion of a field project on some aspect of the speech of their town or their home.

**ENG 257 • 3 credits**  
**Socio-Linguistics**

Previous linguistics training helpful but not necessary. An introduction to the study of language in its social context; readings and discussions of the ethnography of communications, speech and cultural values, speech and social institutions, bilingualism, code-switching.

**ENG 258 • 3 credits**  
**History of the English Language**

A study of the development of English pronunciation, grammar, syntax, and vocabulary in the Old English, Middle English, and Modern English Periods.

**ENG 260 • 3 credits**  
**Advanced Composition**

Primarily for students who wish to gain more proficiency in the art of communication. Emphasis is placed on the development of skill in organizing materials, the forming of a lively and concrete style, and the growth of useful techniques in the arts of exposition, persuasion, and argumentation.

**ENG 261 • 3 credits**  
**Techniques of Critical Writing**

**ENG 262 • 3 credits**  
**Journalism I**

The course deals with the techniques of news and feature writing in conjunction with lectures on libel and slander, international news services and syndicates, importance of the columnist, the physical set-up of a newspaper plant, and other subjects pertinent to journalism as a profession. Prerequisite: Permission of instructor.



**ENG 263 • 3 credits**  
**Journalism II**

This course, sequential to techniques learned in Introduction to Journalism, will stress advanced feature writing, analytical and "Interpretive" journalism, editorial writing, copy-editing skills, and criticism of books, plays, and films.

**ENG 264 • 3 credits**  
**Feature Story and Article Writing**

A workshop in writing of "human interest" articles for newspapers and magazines and in improving essay-writing skills. Guest lecturers from the professional field will be included.  
Prerequisite: ENG 260 or ENG 262.

**ENG 266 • 3 credits**  
**Professional Writing**  
Prerequisite: Permission of instructor.

**ENG 267 • 3 credits**  
**Creative Writing - Poetry**  
The study of contemporary techniques in the writing of poetry. Manuscripts will be read and discussed in class and individual conferences will be arranged. Limited to 20 students.  
Prerequisite: Permission of instructor.

**ENG 268 • 3 credits**  
**Creative Writing — Fiction**  
The course concentrates on the techniques of writing fiction. Manuscripts are read and discussed in class. Individual conferences arranged. Limited to 20 students.  
Prerequisite: Permission of instructor.

**ENG 269 • 3 credits**  
**Creative Writing — Drama**  
A study of the fundamental principles of dramaturgy. Manuscripts are read and discussed in class. Individual conferences are arranged. Limited to 20 students.  
Prerequisite: Permission of instructor.

**ENG 270 • 3 credits**  
**Speech**  
An introduction to the art of public speaking through the study of effective principles combined with adequate practice in speaking before a group. Limited to 20 students.  
Prerequisite: Permission of instructor.

**ENG 271 • 3 credits**  
**Oral Interpretation of Literature I**  
Study of and practice in the oral interpretation of literary work with some consideration to the art of acting.

**ENG 272 • 3 credits**  
**Oral Interpretation of Literature II**  
A continuation of ENG 271.  
Prerequisite: ENG 271.

**ENG 276 • 3 credits**  
**Film as Drama**  
An intensive study of outstanding films with much attention to the techniques of film criticism.

**ENG 277 • 3 credits**  
**Special Topics in Film**  
The course is constructed on a topic selected by the instructor.

**ENG 278 • 3 credits**  
**Writing for the Media**  
The course offers instruction in the various types of writing demanded by radio,

TV and films along with some attention to production methods.

**ENG 280 • 3 credits**  
**The 19th Century Continental Novel**  
A study of 19th century fiction from Russia, France, Germany. Including Tolstoy, Flaubert, Zola, and others.

**ENG 281 • 3 credits**  
**The 20th Century Continental Novel**  
Modern and contemporary fiction of France, Germany, Russia, Spain, Italy, including Mann, Gide, Camus, and others.

**ENG 282 • 3 credits**  
**Modern British Literature**  
The course concentrates on major British writers of the 20th century.

**ENG 283 • 3 credits**  
**20th Century British Novel**  
A study of 20th-century British novelists including such authors as Conrad, Woolf, Joyce, Lawrence, Forster, Huxley, Evelyn Waugh, Cary, and Greene.

**ENG 284 • 3 credits**  
**20th Century American Novel**  
A study of the 20th-century American novel from the naturalists to the present. Some of the authors considered are Norris, Dreiser, Anderson, Wolfe, Hemingway, Faulkner.

**ENG 285 • 3 credits**  
**Contemporary British Fiction**  
The course traces important trends in British fiction since World War II. Writers represented include Cary, Beckett, Golding, Orwell, Tolkien, Lessing, Fowles, and others.

**ENG 286 • 3 credits**  
**Contemporary American Fiction**

A study of significant fiction produced in America since mid-century. Writers represented include Mailer, Bellow, Ellison, Heller, Barth, Pynchon, Vonnegut, and others.

**ENG 287 • 3 credits**  
**Modern Drama**  
A study of modern dramatists from Ibsen, Chekhov, and Strindberg through such playwrights as Shaw, Brecht, O'Neill, Galsworthy, Eliot, Williams, Miller, Giraudoux, Albee, Pinter, and Ionesco.

**ENG 288 • 3 credits**  
**20th Century British Drama**  
From the comedy of manners of Wilde and Shaw to the theater of the absurd of Beckett and Pinter.

**ENG 289 • 3 credits**  
**American Drama**  
A study of American drama from the beginning to the present.

**ENG 290 • 3 credits**  
**Modern British Poetry**  
A study of the chief trends and of the major poets and movements in modern British poetry.

**ENG 291 • 3 credits**  
**20th Century American Poetry**  
A study of major American poets of this century from Frost to Richard Wilbur.

**ENG 292 • 3 credits**  
**Irish Literary Revival**  
The course deals with the development of Irish literature from the end of the 19th century through the first decades of the 20th century. Writers included are Yeats, Joyce, Synge, O'Casey, and others. The cultural,

historical, and political background of Anglo-Irish relations will also be examined.

**ENG 293 • 3 credits**  
**Literature of the American South**

A study of such Southern writers as Faulkner, Wolfe, Warren, McCullers, Ellison, Ransom, Tate, and Tennessee Williams with the following questions in mind: what was the mood of the South which produced the renaissance? In what manner are the works related to or dependent on the writers' Southern background? What is the relationship of Southern to American literature?

**ENG 294 • 3 credits**  
**The Decadence**

A study of the historical conditions and the literary and artistic theories of the late 19th century which culminated in the movement called The Decadence. Novels, plays, poems, and essays by such writers as Wilde, Morris, Swinburne, and Pater will be included.

**ENG 295 • 3 credits**  
**The Experimental Novel**

**ENG 298 • 3 credits**  
**Introduction to Chaucer**

A course designed primarily for non-English majors as an introduction to the greatest English poet of the Medieval Period. Emphasis will be placed on *The Canterbury Tales*.

**ENG 299 • 3 credits**  
**Introduction to Shakespeare**

A course designed primarily for non-English majors. It will examine some of the typical plays of the greatest dramatist in the English language.

**ENG 300 • 3 credits**  
**Survey of British Literature I**  
Required of English Majors. A careful study of British literature from *Beowulf* to Shakespeare.

**ENG 301 • 3 credits**  
**Survey of British Literature II**  
Required of English Majors. A careful study of British writers from Donne to Samuel Johnson.  
Prerequisite: ENG 300.

**ENG 302 • 3 credits**  
**Survey of British Literature III**  
A careful study of British writers from Blake to Hardy. Required of English Majors.  
Prerequisite: ENG 301.

**ENG 303 • 3 credits**  
**Survey of American Literature I**  
A survey of American writing from the Colonial Period to the Civil War. Emphasis is placed on the historical, cultural, and philosophical developments which created a native American literature. Required of English majors.

**ENG 304 • 3 credits**  
**Survey of American Literature II**  
Consideration of American writing from the Civil War to the present.

**ENG 305 • 3 credits**  
**Old English Language and Literature**  
Essentials of Old English grammar along with minor poetry and prose selections constitute a basis for a careful study of the Old English folk epic, *Beowulf*.  
Prerequisite: ENG 300.

**ENG 306 • 3 credits**  
**The Tudor Age**  
A study of the development of non-dramatic literature of the Tudor Period stressing both the literary and historic value of the great works of the Elizabethans and the shaping of the English language as a tool which made those works possible.  
Prerequisite: ENG 300.

**ENG 307 • 3 credits**  
**English Literature of the 17th Century**  
A survey of 17th-century non-dramatic literature from Donne to Dryden which will focus on three major themes: The evolution of modern English prose, the culmination of Elizabethan poetry in the metaphysicals, and the evolution of neo-classical poetic modes.  
Prerequisite: ENG 301.

**ENG 308 • 3 credits**  
**English Literature of the 18th Century**  
A study of English literature of the 18th century with special emphasis on Dryden, Swift, Pope, Johnson and his circle.  
Prerequisite: ENG 301.

**ENG 309 • 3 credits**  
**The Romantic Age**  
A survey of English literature from 1798-1832 stressing the major poets - Blake, Wordsworth, Byron, Shelley, Keats, with some study of novels and personal essays.  
Prerequisite: ENG 302.

**ENG 310 • 3 credits**  
**The Victorian Age**  
A study of the major English writers of non-fiction from 1832-1900. Some prose non-fiction will be covered (Carlyle, Ruskin, Mill, etc.) but major emphasis is on such poets as Tennyson, Browning,

Arnold, Rossetti, Swinburne, Meredith, Hopkins, and Housman.  
Prerequisite: ENG 302.

**ENG 311 • 3 credits**  
**The Victorian Novel**  
A study of the Victorian Novel, both historically and generically, from Jane Austen to Thomas Hardy. Works by Austen, the Brontës, Dickens, Thackeray, George Eliot, Trollope, Meredith, and Hardy will be included.  
Prerequisite: ENG 302

**ENG 312 • 3 credits**  
**British Drama to 1642**  
A study of British drama from its beginnings in the Middle Ages through the closing of the theaters by the Puritans in 1642. Chief emphasis is on the drama of the Elizabethan and Jacobean Periods.  
Prerequisite: ENG 300.

**ENG 313 • 3 credits**  
**The English Novel to 1800**  
A study of types of fiction popular in the 18th century and the reading of major works of the period. Some consideration of the novel as an art form and of its interaction with historical developments. Consideration of such writers as Defoe, Bunyan, Smollett, Sterne, Richardson, Fielding.  
Prerequisite: ENG 301.

**ENG 314 • 3 credits**  
**Colonial American Literature**  
A study of 17th and 18th century American literature from Captain John Smith through Franklin. Emphasis on the historical background of the period and on the various types of literature produced in the period.  
Prerequisite: ENG 303.



**ENG 315 • 3 credits****The American Renaissance**

A study of the five major figures of mid 19th-century American literature — Hawthorne, Melville, Emerson, Thoreau, and Whitman. Readings also in the intellectual and social movements of the period.

Prerequisite: ENG 303.

**ENG 316 • 3 credits****The 19th Century American Novel**

A study of American novelists from Cooper to Crane. Attention will focus on individual works as art and as examples of the development of the novel form in America in the 19th century.

Prerequisite: ENG 303.

**ENG 317 • 3 credits****19th Century American Poetry**

A careful study of the major American poets of the 19th century from Freneau to Whitman and Dickinson.

Prerequisite: ENG 303.

**ENG 318 • 3 credits****Chaucer**

A course designed primarily for English majors with an intensive and critical reading of *The Canterbury Tales*, with due attention to Chaucer's language and ethos. Further emphasis on Chaucer's humanity and the freshness of his thought for the 20th-century reader.

Prerequisite: ENG 300.

**ENG 319 • 3 credits****Shakespeare**

A course designed for and required of English majors. A careful reading of Shakespeare's plays selected from the comedies, tragedies, and histories. Emphasis is on Shakespeare's development as a dramatist, the reasons for his reputation as the greatest poet in the language, and the manner in which his plays reflect Elizabethan customs, attitudes, and beliefs. Some outside reading is required in Shakespearean criticism and in the background of the period.

Prerequisite: ENG 300 or permission of instructor.

**ENG 320 • 3 credits****Milton**

A study of Milton's poetic achievement based on the reading of selected minor poems and their developmental relationship to *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*.

Prerequisite: ENG 301 or permission of instructor.

**ENG 321 • 3 credits****The Golden Ages of Drama**

The course deals with representative plays from the most famous and most productive eras in the history of world drama — Fifth Century B.C. Greece, the Middle Ages, the Renaissance, the age of Moliere, and the realistic and romantic drama of 19th century France and Germany.

Prerequisite: ENG 319 or permission of instructor.

**ENG 322 • 3 credits****History of Literary Criticism**

A study of important literary critics and critical theory from Aristotle to Arnold and T. S. Elliot.

Prerequisite: ENG 302.

**ENG 323 • 3 credits****Bibliography and Research Methods**

Materials and techniques of research in British and American literature; bibliography, form and content of papers and theses. Open only to junior and senior English majors.

Limited to 10 students. Prerequisite: ENG 302 or permission of instructor.

**Seminars**

At least one seminar is required of each English major before he graduates. The particular topic of each seminar is announced immediately before each registration period. Seminars are open only to senior English majors and to junior English majors if space is available.

**ENG 400 • Seminar in American Literature**

**ENG 401 • Seminar in 19th-Century American Literature**

**ENG 402 • Seminar in 20th-Century American Literature**

**ENG 403 • Seminar in an American Author**

**ENG 410 • Seminar in British Literature before 17th Century**

**ENG 411 • Seminar in 17th-Century British Literature**

**ENG 412 • Seminar in 18th-Century British Literature**

**ENG 413 • Seminar in 19th-Century British Literature**

**ENG 414 • Seminar in 20th-Century British Literature**

**ENG 415 • Seminar in a British Author**

**ENG 420 • Seminar in Critical Methods**

**ENG 421 • Seminar in an American Literature Theme**

**ENG 422 • Seminar in a British Literature Theme**

**ENG 423 • Seminar in the History of Ideas**

**ENG 424 • Seminar in Genre Studies**

**ENG 425 • Seminar in Comparative Literature**

Please note that in lieu of the seminar requirement students who elect to concentrate in writing must select one of the following Writing Workshops.

**ENG 450 • Advanced Poetry Workshop** — with permission of instructor.

**ENG 451 • Advanced Fiction Workshop** — with permission of instructor.

**ENG 453 • Advanced Writing Workshop** — with permission of instructor.

**ENG 454 • Advanced Journalism Workshop** — with permission of instructor.

The following courses are arranged with permission of the instructor, the Department Chairman, and the Dean of the College

**ENG 490 • Independent Study**

**ENG 900 • Contract Learning**



# Foreign Literature and Languages

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## Faculty and Fields of Interest

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**Joseph Bronstad** • 20th century German literature and culture

**Maria T. Das Neves** • Portuguese literature and languages

**Antone Felix** • Portuguese culture and civilization

**Lewis Kamm** • 19th and 20th centuries French literature

**Giulio Massano** • Spanish and Italian literature of the Middle Ages, Renaissance and Baroque

**Maria Moreira** • 20th century Brazilian literature; Latin American culture

**Gregory Rocha (chairperson)** • 19th and 20th centuries Portuguese literature

**Maria Rocha** • 19th and 20th centuries Spanish and Latin American literature

**John H. Twomey** • 20th century Spanish and Latin American literature

**Joseph Vinci** • Spanish literature of the Middle Ages and Golden Age

**Ida H. Washington** • 19th century German literature

**Lawrence Washington** • German literature since 1750; linguistics

**Walter J. Weeks** • 19th and 20th centuries Russian literature

**Melvin Yoken** • 19th and 20th centuries French literature

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## Language Major

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The Department offers basic courses in six languages; French, German, Italian, Portuguese, Russian and Spanish, in addition to courses in Latin, linguistics and language methodology. A

student who has demonstrated his aptitude and performance in languages, may elect a major in French, German, Portuguese, and Spanish.

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## Requirements

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A student who wishes to specialize in a modern language — French, German, Portuguese or Spanish — must complete a minimum of 30 credits in 300 and 400 courses in the major field. Twenty-one of these credits must be taken in courses taught in the language. In French, Portuguese and Spanish courses 301 and 302 are required. The remaining hours will be chosen at the discretion of the student with the approval of the adviser. To qualify for any language course at the 300 level, a student must complete 202 or its equivalent. Students, wishing to take 400-level courses, must ordinarily fulfill the requirement for the 300-

level courses, and obtain the consent of the instructor teaching the 400-course and must have earned at least 12 credits in their major at SMU. A grade of 2.0 in the chosen language must be attained for graduation.

The Department recommends that all students specializing in modern languages, especially those planning to teach or pursue a higher degree, take at least 18 hours in a second foreign language.

### Practice Teaching

The Department of Foreign Literature and Languages permits only those students with a 3.0 cumulative in their

major to engage in the University's Teaching Intern Program. Each semester, a list of qualified students will be submitted to the Department of Education.

### Honors

Senior majors in the Foreign Literature and Languages Department who have an overall cum. of 3.5 can choose to do honors work. The student must take a three (3) credit independent study on a specific topic. This course will have an extensive reading list and the student must present a long term paper which will be evaluated by a committee. The term paper must have at least a grade of A-.

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## French Courses

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**FR 101 • 3 credits****Elementary French I**

Essentials of aural-oral, reading and writing usage of the target language, with intensive drilling on pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

**FR 102 • 3 credits****Elementary French II**

Continuation of FR 101.

**FR 201 • 3 credits****Intermediate French I**

Review of grammar with composition and aural-oral practice. Introduction to French culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week. Prerequisite: FR 102 or equivalent.

**FR 202 • 3 credits****Intermediate French II**

Continuation of FR 201.

**FR 203 • 3 credits****French Literature in Translation I**

Outstanding works of French literature through the eighteenth century. Readings, lectures, and discussions in English. Prerequisite: ENG 102.

**FR 204 • 3 credits****French Literature in Translation II**

Outstanding works of French literature of the nineteenth and twentieth centuries. Readings, lectures, and discussions in English. Prerequisite: ENG 102.

**FR 301 • 3 credits****French Composition and Conversation I**

Oral and written reports. Practical application of grammar, vocabulary building and introduction to style. Prerequisite: FR 202 or equivalent.

**FR 302 • 3 credits****French Composition and Conversation II**

Continuation of FR 301.

**FR 312 • 3 credits****Culture and Civilization of France**

Introduction to the cultural development of the French people throughout history. Lectures, class discussions, written and oral reports on the significant aspects of French literary, social, and artistic life. Prerequisite: FR 202 or equivalent.

**FR 323 • 3 credits****French Phonetics**

Transcription of prose and poetry in terms of the International Phonetic Alphabet. Phonetic and phonemic change, regionalisms, intonation stress and articulation. Prerequisite: FR 202 or equivalent.

**FR 331 • 3 credits****Masterpieces of French Literature I**

The representative authors, poets and dramatists of French literature from La Chanson de Roland through the age of Enlightenment will be read and discussed. Prerequisite: FR 302 or equivalent.

**FR 332 • 3 credits****Masterpieces of French Literature II**

The main literary movements from the nineteenth century to the contemporary period will be analyzed. Discussion of literary genres and important aspects of French literary history. Prerequisite: FR 302 or equivalent.

**FR 443 • 3 credits****French Literature of the Renaissance**

Critical readings of Villon and of major authors of the sixteenth century, chiefly Marot, Rabelais, Ronsard, DeBelay and Montaigne. Prerequisite: FR 302 or consent of instructor.

**FR 445 • 3 credits****French Literature of the Seventeenth Century**

Analysis and critical discussion of works from the French Classical period. Prerequisite: FR 302 or consent of instructor.

**FR 452 • 3 credits****The Age of Enlightenment**

Growth of the philosophical movement and formation of the revolutionary spirit. Development of the novel, theatre, etc., in the works of LeSage, Montesquieu, Voltaire, Diderot, Rousseau, etc. Prerequisite: FR 302 or consent of instructor.

**FR 455 • 3 credits****French Literature of the Romantic Period**

Selected readings in Chateaubriand, Lamartine, Vigny, Musset and Hugo. Prerequisite: FR 302 or consent of instructor.

**FR 456 • 3 credits****French Literature of the Post-Romantic Period**

Study of the form and development of the novel, drama, theatre and poetry with readings in Stendhal, Balzac, Flaubert, Baudelaire, Rimbaud, Mallarmé, Verlaine and Zola. Prerequisite: FR 302 or consent of instructor.

**FR 461 • 3 credits****Contemporary French Literature**

Main currents of literary thought as reflected in the drama, novel, and poetry of today: Claudel, Proust, Gide, Sartre, Camus, Duhamel, Romans, etc. Prerequisite: FR 302 or consent of instructor.

**FR 481 • 3 credits****Seminar in French**

An intensive study of a specific topic, such as aural French comprehension, or a particular author or a literary movement. The topic will vary from year to year so that the course may be repeated for credit. Prerequisite: FR 302 or consent of instructor.

**FR 482 • 3 credits****Seminar in French**

Similar to FR 481 but with a different topic, including History of the French Language. Prerequisite: FR 302 or consent of instructor.

**FR 495 • 2-4 credits****Independent Study**

Intensive study or research on a special topic under the direction of a staff member. Hours to be arranged. Prerequisite: Senior standing.

**FR 496****Directed Studies**



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## German Courses

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**GE 101 • 3 credits****Elementary German**

Introductory study of the language and its grammatical structure. Development of the skills of understanding, speaking, reading and writing. Three hours of recitation and one hour of laboratory per week.

**GE 102 • 3 credits****Elementary German**

Continuation of GE 101.

**GE 103 • 3 credits****Conversational German I**

This course is parallel to GE 101; but the emphasis is on learning to understand and speak in everyday situations, particularly in connection with travel and life in Germany today. No previous knowledge of German required.

**GE 104 • 3 credits****Conversational German II**

Continuation of GE 103 (parallel to GE 102).

**GE 201 • 3 credits****Intermediate German**

Review of grammar. Development of facility in composition and conversation. Intensive and extensive reading in texts of cultural and literary value. Three hours of recitation and one hour of laboratory per week. Prerequisite: GE 102 or equivalent.

**GE 202 • 3 credits****Intermediate German**

Continuation of GE 201.

**GE 203 • 3 credits****German Literature in Translation**

A survey of German literature from its beginnings through the works of Goethe and Schiller. Lectures, discussion, and reading in English. Prerequisite: E 102

**GE 204 • 3 credits****German Literature in Translation**

A survey of nineteenth and twentieth century German literature. Lectures, discussions, and reading in English. Prerequisite: E 102.

**GE 301 • 3 credits****German Composition and Conversation**

Extensive oral and written application of German on the advanced level. The course will be conducted in German with emphasis on idiomatic use of the language and finer points of grammar to give the student greater confidence and accuracy in expression. Prerequisite: GE 202 or equivalent

**GE 311 • 3 credits****German Culture and Civilization**

Through reports, readings, and discussions in German, the student will learn about life in Germany, Austria, and Switzerland, both on the contemporary scene and from a historical perspective. Prerequisite: GE 202 or equivalent.

**GE 326 • 3 credits****History of the German Language**

The historical development of German from its Indo-European origins to the present, its vocabulary, forms, and syntax particularly in their relationship to English. No previous knowledge of German required.

**GE 335 • 3 credits****German Poetry**

A survey of German poetry from the ninth to the twentieth century, with analysis of changing form and content. Prerequisite: GE 202 or consent of instructor.

**GE 357 • 3 credits****German Novelle**

The short prose form in its development during the nineteenth and twentieth centuries through a reading of representative authors. Prerequisite: GE 202 or consent of instructor.

**GE 366 • 3 credits****Contemporary German Literature**

Recent developments in German literature in the Federal Republic of Germany and the German Democratic Republic, as well as in Austria and Switzerland. Material will be presented through reports, readings, and discussions in German. Prerequisite: GE 202 or Equivalent.

**GE 374 • 3 credits****German Drama**

German drama from its beginnings to the present day through a reading of representative plays. Prerequisite: GE 202 or consent of instructor.

**GE 481 • 3 credits****Seminar in German**

An intensive study of a specific topic, such as a particular author or literary movement. The topic will vary from year to year so that the course may be repeated with credit. Prerequisite: A 300-level course in German or consent of instructor.

**GE 482 • 3 credits****Seminar in German**

Similar to GE 481 but with a different topic. Prerequisite: A 300-level course in German or consent of instructor.

**GE 495****Independent Study**

Individual study or research on a special topic under the direction of a staff member. Offered only on demand. Prerequisite: Senior standing.

**GE 496****Directed Studies**



Italian Courses	Linguistic Courses	Latin Courses	Teaching Methods Course
<p><b>LG 101 • 3 credits</b>  <b>Elementary Italian I</b>  Essentials of aural-oral, reading and writing usage of the target language with intensive drilling on pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.</p>	<p><b>LN 322 • 3 credits</b>  <b>Introduction to Linguistics</b>  The nature, development and structure of human speech. Topics studied include the (significant) sounds of speech; Phonetics and Phonemics; building blocks of speech; Morphemics; syntactic structures.</p>	<p><b>LT 101 • 3 credits</b>  <b>Introductory Latin I</b>  The fundamentals of the Latin language with selected readings, designed especially for those majoring in English or foreign languages. The course will seek to develop a measure of oral ability in the language, as well as knowledge of the phonemics, morphology, and syntax of the declensional and conjugational systems.</p>	<p><b>ML 324 • 3 credits</b>  <b>Concepts of Foreign Language Teaching</b>  An analysis of methods and techniques on the teaching and learning of foreign languages. Examination of innovations in foreign language education. A study of the problems of language, subject matter, and materials inherent in bi-lingual education. Individual and group projects with application of theory to practice.</p>
<p><b>LG 102 • 3 credits</b>  <b>Elementary Italian II</b>  Continuation of LG 101.</p>	<p><b>LN 326 • 3 credits</b>  <b>Comparative Romance Linguistics</b>  This course traces the development of the Romance languages from Classical and Vulgar Latin to their present forms with attention to phonology, morphology and the lexicon. Recommended for majors in French, Portuguese, and Spanish. A previous knowledge of Latin is desirable but not required.</p>	<p><b>LT 102 • 3 credits</b>  <b>Introductory Latin II</b>  Continuation of LT 101.</p>	
<p><b>LG 201 • 3 credits</b>  <b>Intermediate Italian I</b>  Review of grammar with composition and aural-oral practice. Extensive readings of cultural and literary value. Emphasis on practical application of grammar in conversations. Three recitations a week. Prerequisite: LG 102 or equivalent.</p>		<p><b>LT 201 • 3 credits</b>  <b>Intermediate Latin I</b>  A third semester of Latin, designed to develop skill in the reading of representative authors of the Golden Age (Catullus, Cicero, Nepos, Horace, Martial and others), with additional selections from the Patristic Period (Vulgate), and from the Medieval Period (Isidore of Seville, and the Venerable Bede). Prerequisite: LT 102</p>	
<p><b>LG 202 • 3 credits</b>  <b>Intermediate Italian II</b>  Continuation of LG 201.</p>		<p><b>LT 202 • 3 credits</b>  <b>Intermediate Latin II</b>  A fourth semester course paralleling LT 201 but with more extensive selections, from Nepos, Horace and Phaedrus (Augustan Period); from the Epistolae of Pliny the Younger, mirroring Roman life, and from the Saturnae of Martial; supplemented by other materials where feasible. While one purpose of LT 201-202 will remain the building of ability to translate, the endeavor will be made to foster reading of the Latin texts directly in the original, for personal enrichment and satisfaction. Prerequisite: LT 201</p>	
<p><b>LG 211 • 3 credits</b>  <b>Textual Analysis</b>  Literary explication. Intensive readings with analysis of relationships between language and thought and form and content. Training in the writing of analytical critique. Course taught in English. Applied to all Foreign Literature and Languages majors.</p>			

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## Portuguese Courses

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**PO 100 • 6 credits****Accelerated Elementary Portuguese**

Five classes per week - 2 language labs.

A one semester intensified and concentrated study of PO 101-102 for greater coverage and depth. Recommended for language majors and students interested in acquiring the skills of the language.

**PO 101 • 3 credits****Elementary Portuguese I**

Essentials of aural-oral, reading and writing usage of the total language with intensive drilling on pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

**PO 102 • 3 credits****Elementary Portuguese II**

Continuation of PO 101.

**PO 105 • 3 credits****Conversational Portuguese I**

An introductory course in the development of fluency in colloquial situations, particularly those relating to business, professional work, or education. Some attention to grammar. Relevant readings of cultural value.

**PO 106 • 3 credits****Conversational Portuguese II**

Continuation of PO 105.

**PO 200 • 6 credits****Accelerated Intermediate Portuguese**

Five classes per week — 2 language labs. A one semester intensified and concentrated study of PO 201-202 for greater coverage and depth. Recommended for language majors and students interested in developing the skills of the language. Prerequisite: PO 100 or PO 101-102.

**PO 201 • 3 credits****Intermediate Portuguese I**

Review of grammar with composition and aural-oral practice. Introduction to Portuguese and Brazilian culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week. Prerequisite: PO 102 or equivalent.

**PO 202 • 3 credits****Intermediate Portuguese II**

Continuation of PO 201.

**PO 203 • 3 credits****Portuguese Literature in Translation I**

Outstanding works of Portuguese literature through the twentieth century. Readings, lectures, and discussions in English. Prerequisite: ENG 102.

**PO 204 • 3 credits****Brazilian Literature in Translation II**

Outstanding works of Brazilian literature of the nineteenth and twentieth centuries. Readings, lectures, and discussions in English. Prerequisite: ENG 102.

**PO 205 • 3 credits****Intermediate Conversational Portuguese I**

Further development of fluency to deal with native speakers on everyday terms. More involved grammar. Relevant readings of cultural value. Prerequisite: A course in elementary Portuguese or consent of instructor.

**PO 206 • 3 credits****Intermediate Conversational Portuguese II**

Continuation of PO 205.

**PO 301 • 3 credits****Portuguese Composition and Conversation I**

Oral and written reports on everyday events. Emphasis placed on correct syntax and style. Prerequisite: PO 202 or equivalent.

**Portuguese Composition and Conversation II**

Continuation of PO 301.

**PO 302 • 3 credits****Portuguese Composition and Stylistics****PO 312 • 3 credits****Culture and Civilization of Portugal**

Introduction to the cultural development of the Portuguese people throughout history. Lectures, class discussions, written and oral reports on significant aspects of Portuguese literary, social and artistic life. Prerequisite: PO 301 or equivalent.

**PO 314 • 3 credits****Culture and Civilization of Brazil**

The development of Brazil and its people from the colonial period to the present. Lectures, class discussions, written and oral reports on the significant aspects of Brazilian literary, social and artistic life. Prerequisite: PO 301 or equivalent.

**PO 325 • 3 credits****Advanced Portuguese Grammar and Syntax**

A study of Portuguese grammar and its usage with extensive drills. Prerequisite: PO 202 or equivalent.

**PO 331 • 3 credits****Masterpieces of Portuguese Literature I**

Representative works of outstanding Portuguese authors, poets and dramatists from the Middle Ages to the classical period. Prerequisite: PO 302 or equivalent.

**PO 332 • 3 credits****Masterpieces of Portuguese Literature II**

Selected works starting with the "Arcadia" movement and continuing to the contemporary period. Prerequisite: PO 331 or equivalent.

**PO 333 • 3 credits****Masterpieces of Brazilian Literature I**

The major literary works from the colonial period to Romanticism. Prerequisite: PO 302 or equivalent.

**PO 334 • 3 credits****Masterpieces of Brazilian Literature II**

The outstanding literary works from Realism to Modernism. Prerequisite: PO 302 or equivalent.

**PO 337 • 3 credits****Business Portuguese I**

The main objective of this course is to help Portuguese speaking students to become familiarized with the vocabulary used in business correspondence and translation. This objective will be reached by teaching the fundamentals of business correspondence in Portuguese and the translation of business related subjects from English to Portuguese and vice-versa. Readings on the economy and finances of Brazil and Portugal will also be emphasized.



## Russian Courses

**PO 338 • 3 credits**  
**Business Portuguese II**  
 Continuation of PO 337.

**PO 445 • 3 credits**  
**The Classical Period**  
 The literary works of the great national period of Portugal. Emphasis on the classical theatre and the *Lusiads*.  
 Prerequisite: PO 331-332 or consent of instructor

**PO 446 • 3 credits**  
**The Classical Period Prose and Poetry**  
 The literary works of the great national period of Portugal. Emphasis on poetry, the literature of discovery, and prose.  
 Prerequisite: PO 331-332 or consent of instructor.

**PO 455 • 3 credits**  
**Literature of the 19th and 20th Century I**  
 A study of Romanticism and Realism. The "Generation of Coimbra" is discussed, but Eca de Queiroz will be studied in PO 456.  
 Prerequisite: PO 331-332 or consent of instructor.

**PO 456 • 3 credits**  
**Literature of the 19th and 20th Century II**  
 A study of Realism with special emphasis on Eca de Queiroz and the contemporary movements.  
 Prerequisite: PO 331-332 or consent of instructor.

**PO 481 • 3 credits**  
**Seminar in Portuguese**  
 An intensive study of a specific topic, such as a particular author or literary movement. The topic will vary from year to year so that the course may be repeated with credit.  
 Prerequisite: PO 331-332 or 333-334 and consent of instructor.

**PO 482 • 3 credits**  
**Seminar in Portuguese**  
 Similar to PO 481 but with a different topic. (A spring semester offering while PO 481 is for fall.)  
 Prerequisite: PO 331-332 or 333-334 and consent of instructor.

**PO 495 • 2-4 credits**  
**Independent Study**  
 Intensive study or research on a specific topic in Portuguese or Brazilian studies, under the direction of a staff member.  
 Prerequisite: Senior standing.

**PO 496**  
**Directed Studies**

**RU 101 • 3 credits**  
**Elementary Russian I**  
 A study of the fundamentals of Russian grammar together with drills in pronunciation and reading. Conversation in Russian is introduced from the beginning. Various outside readings in Russian will introduce the student to Russian and Soviet culture. Three recitations and one hour of laboratory per week.

**RU 102 • 3 credits**  
**Elementary Russian II**  
 Continuation of RU 101.

**RU 201 • 3 credits**  
**Intermediate Russian I**  
 This course will include a review of basic grammar and a study of more advanced syntax. Readings will serve as the basis for continued work in conversation and composition, and for the study of Russian and Soviet culture. Three recitations and one hour of laboratory per week.  
 Prerequisite: RU 102 or equivalent.

**RU 202 • 3 credits**  
**Intermediate Russian II**  
 Continuation of RU 201.

**RU 203 • 3 credits**  
**Masterpieces of Russian Literature in Translation I**  
 A survey of Russian literature from its beginning to 1870. Representative works of major authors will be read and discussed. Conducted in English. Three recitations per week.  
 Prerequisite: ENG 102.

**RU 204 • 3 credits**  
**Masterpieces of Russian Literature in Translation II**  
 A survey of Russian literature from 1870 to the present. Representative works of major authors will be read and discussed. Conducted in English.  
 Three recitations per week.  
 Prerequisite: ENG 102.

**RU 205 • 3 credits**  
**Russian for Biology Students I**  
 Introductory readings in biological Russian from Soviet texts and edited published articles. Particular attention will be paid to scientific vocabulary.  
 Prerequisite: RU 102.

**RU 206 • 3 credits**  
**Russian for Biology Students II**  
 Reading and translation of current articles from Soviet Periodicals in Botany, Ecology, Morphology, Physiology, Zoology, and other areas.  
 Prerequisite: RU 201 or RU 205.

**RU 301 • 3 credits**  
**Russian Conversation and Composition**  
 Oral and written reports. Practical application of grammar, vocabulary building and introduction to style. Three recitations per week.  
 Prerequisite: RU 202 or equivalent.



## Spanish Courses

**RU 302 • 3 credits**  
**Russian Conversation and Composition**  
 Continuation of RU 301.

**RU 303 • 3 credits**  
**Russian Expository Prose I**  
 Readings in the humanities and social sciences from Soviet newspapers and journals.  
 Special attention will be paid to journalistic syntax and acquisition of a core vocabulary.  
 Prerequisite: RU 202.

**RU 304 • 3 credits**  
**Russian Expository Prose II**  
 Continuation of RU 303.

**RU 495**  
**Independent Study**  
 Intensive study or research on a special topic under the direction of a staff member.  
 Hours to be arranged.  
 Prerequisite: Senior standing.

**RU 496**  
**Directed Studies**

**SP 100 • 6 credits**  
**Accelerated Elementary Spanish**  
 A one semester intensified and concentrated study of Elementary Spanish for greater coverage and depth. Recommended for language majors, minors, and students with established language skills. Five classes per week and 2 hours of language laboratory.

**SP 101 • 3 credits**  
**Elementary Spanish I**  
 Essentials of aural-oral, reading and writing usage of the target language with intensive drilling on pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

**SP 102 • 3 credits**  
**Elementary Spanish II**  
 Continuation of SP 101.

**SP 200 • 6 credits**  
**Accelerated Intermediate Spanish**  
 A one semester intensified and concentrated study of Intermediate Spanish for greater coverage and depth. Recommended for language major, minors, and students with established language skills. Five classes per week and 2 hours of language laboratory.  
 Prerequisite: SP 100 or SP 102

**SP 201 • 3 credits**  
**Intermediate Spanish I**  
 Review of grammar with composition and aural-oral practice. Introduction to Hispanic Culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week.  
 Prerequisite: SP 102 or equivalent.

**SP 202 • 3 credits**  
**Intermediate Spanish II**  
 Continuation of SP 201.

**SP 203 • 3 credits**  
**Spanish Literature in Translation I**  
 Outstanding works of Spanish literature through the eighteenth century. Readings, lectures, and discussions in English.  
 Prerequisite: ENG 102.

**SP 204 • 3 credits**  
**Spanish Literature in Translation II**  
 Outstanding works of Spanish and/or Spanish-American literature of the nineteenth and twentieth centuries. Readings, lectures, and discussions in English.  
 Prerequisite: ENG 102.

**SP 301 • 3 credits**  
**Spanish Composition and Conversation**  
 Oral and written reports. Practical application of grammar, vocabulary building and introduction to style.  
 Prerequisite: SP 202 or equivalent.

**SP 302 • 3 credits**  
**Conversation and Composition II**  
 Continuation of SP 301.  
 Abundant discussions and oral reports based on modern literary works, expository or journalistic prose from Spain and Latin America.  
 Vocabulary building and frequent compositions.  
 Prerequisite: SP 301 or equivalent or permission of the instructor.

**SP 304 • 3 credits**  
**Advanced Composition and Conversation**  
 Abundant discussion and oral reports on current themes in the Hispanic world. Frequent compositions on topics found in Spanish and Spanish-American periodicals and newspapers.  
 Prerequisite: SP 302 or consent of instructor.

**SP 312 • 3 credits**  
**Culture and Civilization of Spain**  
 Introduction to the cultural development of the Spanish people throughout their history. Lectures, class discussion, written and oral reports, on the significant aspects of Spanish literary, social and artistic life.  
 Prerequisite: SP 301 or consent of instructor.

**SP 314 • 3 credits**  
**Culture and Civilization of Latin America**  
 Lectures, class discussions, written and oral reports on the significant aspects of Latin American literary, social and artistic development from the period of discovery and colonization to present times.  
 Prerequisite: SP 301 or consent of instructor.

**SP 325 • 3 credits**  
**Advanced Spanish Grammar and Syntax**  
 A systematic study of Spanish grammar with extensive practice in composition. Recommended for those planning to teach.  
 Prerequisite: SP 202.

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**SP 331 • 3 credits**

**Masterpieces of Spanish Literature I**

The representative authors, poets and dramatists of Spanish literature from El Cantar de Mio Cid in the Middle Ages to Quevedo in the Baroque period.

Prerequisite: SP 302 or consent of instructor.

**SP 332 • 3 credits**

**Masterpieces of Spanish Literature II**

Selected plays, novels and poetry from the eighteenth century to the contemporary period.

Prerequisite: SP 302 or consent of instructor.

**SP 333 • 3 credits**

**Representative Authors of Spanish American Literature I**

The main writers from the period of conquest and discovery in the New World to the development of Gaucho literature in the nineteenth century.

Prerequisite: SP 302 or consent of instructor.

**SP 334 • 3 credits**

**Representative Authors of Spanish American Literature II**

The major works from the pre-Modernist period in the nineteenth century to the contemporary period.

Prerequisite: SP 302 or consent of instructor.

**SP 445 • 3 credits**

**Spanish Poetry and Drama of the Golden Age**

The poetry of the Renaissance and Baroque periods together with the selected plays of Lope de Vega, Calderon de la Barca and Tirso de Molina.

Prerequisite: SP 331-332 or consent of instructor.

**SP 446 • 3 credits**

**Spanish Prose of the Golden Age**

The main authors of the sixteenth and seventeenth centuries with emphasis on the life and major works of Miguel de Cervantes.

Prerequisite: SP 331 or consent of instructor.

**SP 455 • 3 credits**

**Literature of the Nineteenth Century**

The main literary movements, romanticism, realism and naturalism are studied together with the representative works of outstanding authors, poets, and dramatists.

Prerequisite: SP 331-332 or consent of instructor.

**SP 456 • 3 credits**

**Contemporary Spanish Literature**

The leading writers of each literary form from the generation of 98 to the post-Spanish Civil War period.

Prerequisite: SP 331-332 or consent of instructor.

**SP 481 • 3 credits**

**Seminar in Spanish**

An intensive study of a specific topic or topics, such as a particular author, genre, or literary movement. The topic or topics will vary from year to year so that the course may be repeated with credit.

Prerequisite: SP 331, 332 or SP 333, 334 or consent of instructor.

**SP 482 • 3 credits**

**Seminar in Spanish**

Similar to SP 481 but with a different topic. (A spring semester offering while SP 481 is for fall.)

Prerequisite: SP 331, 332 or SP 333, 334 or consent of instructor.

**SP 495 • 2-4 credits**

**Independent Study**

Intensive study or research on a special topic in Spanish or Spanish American literature under the direction of a faculty member. Hours to be arranged.

Prerequisite: Senior standing.

**SP 496**

**Directed Studies**





# Gerontology Courses

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## Gerontology Courses

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The following Arts and Sciences courses are offered by the Division of Continuing Studies. Although there is no department for these courses, coordinator for them is the Institute on Health and Long Life, Director: Dr. Robert L. Piper.

**SS 105 • 3 credits**  
**Death and Dying**

Exploring these topics: changing meanings of death and dying, death in popular culture, demography of death, life after death, old and new meanings, survivors, grief, widowhood, funerals, moral dilemmas of death.

**SS 112 • 3 credits**  
**Elder Affairs in American Society**

The culture and society will be examined to determine the historical forces and cultural values that shape a society's thinking about aging and the elderly. The political processes which influence the conditions of the elderly and which also create the political arena in which the elderly may exert their power will be studied including how the elderly may organize to obtain resources and services to enhance healthful aging.

**SS 115 • 3 credits**

**Applied Psychology for Elders**

An exploration of the coping strategies of older people which may be both functional and dysfunctional to their adjustment to the aging process (as viewed from a psychological perspective).

**SS 123 • 3 credits**

**Communication: A Life-Long Process**

Focus on various factors that contribute to effective communication, the process of forming relationships, and the ability to confront important issues.

**SS 135 • 3 credits**

**Community Training for Programs and Services for Elders**

Introductory course designed to acquaint students with the aging network and to develop fundamental helping skills in working with the older population.

**SS 301 • 3 credits**

**Introduction to Gerontology**

Provides a better understanding of aging as a process of human development. Information and insights on the process from disciplines such as psychology, biology, sociology, literature, and economics.

## Faculty and Fields of Interest

**Martin J. Butler** • American economic, maritime, local, oral history

**Ann T. Carey (chairperson)** • Germany, modern Europe

**Frederick V. Gifun** • Latin America, Iberia

**Kevin J. Hargreaves** • France, European intellectual

**James Hijiya** • American history

**Albert S. Hill** • modern France, modern Europe

**Tao-Chen Hsia** • China, Japan, Asia

**Gerard M. Koot** • modern Britain, modern Europe

**Robert Michael** • modern France, modern Europe

**Betty Mitchell** • nineteenth century United States, Women's history

**Geraldine M. Phipps** • Russia, Eastern Europe

**Lester H. Rifkin** • U.S. social and intellectual

**M. C. Rosenfield** • Britain, medieval Europe.

**Joseph N. Scionti** • Renaissance and Reformation, Italy

**John M. Werly** • twentieth century United States, urban America

## History Major

All history majors will be required to take 36 credits in history as indicated in Requirements below. Freshmen will normally not take courses above the 100 or 200 level. It is expected that each history major will consult regularly with his class advisor in formulating a program of study that will help to fulfill his educational and career goals.

### History Honors Program

The History Department offers an Honors Program for senior majors with a 3.3 cumulative average. In this program students write a research paper with a faculty member of their choice. For details on this program, students should consult their advisor.

## History Minor

The History Department offers a Minor in History with the following requirements:

1. 18 Credits in History as follows:

a) At least 9 credits of 300-400 level courses

b) At least 3 credits in

Historiography or a seminar

c) No more than 6 credits at the 100 level.

2. Any degree candidate who has at least 54 credits with a cumulative grade point average of 2.0 and at least

2.5 grade point average in his/her major may request admission to the minor in History. This request must be approved by the Department Chairperson. Upon admission students will be assigned an advisor.

3. A student who maintains a 2.0 average in his/her history courses (for the minor) will have the successful completion of a minor in History noted on his/her transcript and diploma.

## Requirements

At least 6 hours of 100-level courses and 30 hours of history courses past the 100 level to be divided in the following manner:

	Semester Credits
United States history	6
European history	6
Other fields, to include Russia, Latin America, Asia, Near East, Africa (may be taken at the 100 level)	6
Either Historiography (HI 250) or a Seminar (400 level)	3
Electives	9

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## History Courses

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**HI 101 • 3 credits**  
**History of Western Civilization I**

A survey of the growth of European civilization from ancient times to the end of the Middle Ages, including economic, social, political and intellectual developments.

**HI 102 • 3 credits**  
**History of Western Civilization II**

A continuation of the study of European civilization from the end of the Middle Ages to the present, with emphasis on the origins and development of 20th century problems.

**HI 111 • 3 credits**  
**Introduction to History I**

An introductory course dealing with selected topics in European and world history prior to the 20th century. Course content will vary with instructor.

**HI 112 • 3 credits**  
**Introduction to History II**  
An introductory course dealing with selected topics in European and world history in the modern period. Course content will vary with instructor.

**HI 113 • 3 credits**  
**Introduction to History I-a**  
An introductory course dealing with selected topics in American history prior to the 20th century. Course content will vary with instructor.

**HI 114 • 3 credits**  
**Introduction to History II-a**  
An introductory course dealing with selected topics in American history during the 20th century. Course content will vary with instructor.

**HI 115 • 3 credits**  
**History of the United States I**

A survey of political, social, economic and diplomatic developments from colonial times to the Civil War. Continuity and change in domestic and foreign policies, and the role of individuals, movements and institutions will be emphasized.

**HI 116 • 3 credits**  
**History of the United States II**

A continuation of the survey of American history, from the Civil War and Reconstruction to the present.

**HI 160 • 3 credits**  
**Slavic Civilization**  
Survey of the cultural, political and economic development of the Slavic peoples of Eastern Europe.

**HI 170 • 3 credits**  
**Latin American Civilization I**  
An introduction to the history, culture, and institutions of the regions of the Western Hemisphere colonized by Portugal and Spain. Considers the native American, European, and African elements of Latin American Civilization from the pre-Columbian era to the wars for independence in the 1820's.

**HI 171 • 3 credits**  
**Latin American Civilization II**  
A survey of the independent nations of Latin America from the 1820's to the present. Emphasis on the process of legitimizing political authority, race and class, ideological influences, foreign economic penetration, revolution and the status quo, and development.

**HI 175 • 3 credits**  
**Iberian Civilization I**  
First of a two-semester survey of the societies and nations of the Iberian Peninsula. Deals with major formative influences, including the Roman and Arab-Berber contributions, state building, and the beginnings of empire, to 1640.

**HI 176 • 3 credits**  
**Iberian Civilization II**  
A continuation of HI 175, from 1640 to the present. Traces the evolution of the modern nations of Spain and Portugal through their principal institutions, cultures, colonial empires, and economic development within Europe.

**HI 180 • 3 credits**  
**Asian Civilization**  
A survey of Asian culture, its origins in Chinese and Indian Civilizations, and its subsequent development. Emphasis on the historical, social and economic development of such newly independent Asian countries as Indonesia, Malaya, Singapore.

**HI 190 • 3 credits**  
**African Civilization**  
An introduction to the culture, history, and civilizations of the African continent, with special emphasis on sub-Saharan Africa. This one-semester survey is designed to acquaint the student with the principal themes of African history and development from pre-historic to modern times.

**HI 203 • 3 credits**  
**20th Century America I**  
An interpretive analysis of the major American domestic and foreign policy trends from 1900 to 1945: Progressive Era, World War I, Red Scare, Roaring Twenties, Depression, New Deal, World War II.

**HI 204 • 3 credits**  
**20th Century America II**  
An interpretive analysis of the major American domestic and foreign policy trends from 1945 to the present: the Cold War, Fair Deal, McCarthyism, Eisenhower Years, New Frontier, Great Society, Vietnam, Counterculture, Nixon Years.

**HI 205-206 • 3 credits**  
**Afro-American History I and II**  
A survey of the role of Blacks in American history from the colonial period to the present. Emphasis on the role of Blacks in American life and culture.

**HI 207 • 3 credits**  
**Women's History in the United States: Colonial to the Present**  
Survey of the history of women — black and white, native and immigrant, rich and poor — in the U.S. from colonial times to the present. Among the topics to be discussed are: women's role in agrarian vs. industrial society; women and the family; women in the labor movement; female friendships and organizations; the frontier experience; women's suffrage; sex and sex roles; and the birth and growth of the feminist movement.



**HI 215 • 3 credits****Massachusetts History**

A survey of the historical development of the state, within the context of New England and national historical trends. A wide variety of topics are treated in order to provide a broad appreciation of the factors which have contributed to the evolution of the modern state of Massachusetts and its people.

**HI 221 • 3 credits****History of Greek Civilization**

An introduction to the history of Greek Civilization, from Minoan and Mycenaean times to the Hellenistic period. Emphasis will be on cultural and intellectual developments in the social and political contexts.

**HI 222 • 3 credits****History of Roman Civilization**

A survey of Roman civilization from the origins of Rome to the age of Constantine.

**HI 223 • 3 credits****Medieval History**

A one-semester course on the transition of Europe during the period from the end of the Classical World to the Renaissance. Emphasis on political development, social and economic change and the role of the Church.

**HI 228 • 3 credits****History of Europe, 1815-1914**

The major political, economic, intellectual and social developments in Europe from the defeat of Napoleon to the outbreak of World War I.

**HI 229 • 3 credits****Europe in the 20th Century, to 1939**

A study of the forces shaping contemporary Europe. Attention will be paid to World War I and its impact, the Versailles settlement, liberalism and democracy in the 20th century, the challenge of totalitarian systems, and the coming of the Second World War.

**HI 230 • 3 credits****Europe in the 20th Century, Since 1939**

A continuation of HI 229, with emphasis on World War II and its aftermath, the Cold War, Europe's loss of world domination, the movement toward the unity of Europe, and new intellectual and artistic trends.

**HI 250 • 3 credits****Historiography**

A one-semester course devoted to the study of history as a means to understanding human experience and development. Acquaints the student with source materials, research methods and problems of interpretation.

**HI 270 • 3 credits****Latin American-United States Relations**

Surveys the long history of contacts between Anglo and Latin America, with fullest emphasis on the era of the national states and the evolution of the inter-American system. Economic, cultural, and political aspects of the relationship will be studied, up to the present.

**HI 271 • 3 credits****Latin America in World Affairs Since 1939**

Emphasizes the international outlook of the Latin American nations, their participation in international organizations, identification with the 'third world', and their relationships with the major powers.

Topics include: Latin America and the Cold War, development needs and strategies, sources and influence of foreign investment and technology, and the relation of these issues to United States hemispheric hegemony and anti-Americanism.

**HI 282 • 3 credits****China and the Far East**

A one-semester course introducing the history and geography of China, Japan and Korea. Emphasis on events since the establishment of relations with the West. The interrelations of the three principal Far Eastern states in modern times will be studied.

**HI 283 • 3 credits****Chinese Civilization and Culture**

This course covers general Chinese history and civilization from ancient times to the present. Emphasis on China's cultural contributions at times of both unity and disunity, and upon the characteristics of cultural change and continuity.

**HI 284 • 3 credits****Japanese Civilizations and Culture**

A study of Japanese cultural and political development from ancient to modern times with emphasis on literature, religion and art.

**HI 285 • 3 credits****History of the People's Republic of China**

A study of the world's largest country according to population. Covers the rise and fall of Nationalist China, the establishment of the People's Republic; social transformation, economic policy, bureaucracy and freedom, Mao's ideology, the people's communes, the cultural revolution, the new leadership and the new U.S./China relations.

**HI 300 • 3 credits****Topics in American History**

A critical analysis of selected topics or issues in American history which are not otherwise offered in the standard catalogue courses.

**HI 301 • 3 credits****American Colonial History**

The British North American colonies from their origins to the eve of the Revolution.

**HI 305 • 3 credits****The United States from the Revolution to the Age of Jackson**

A study of the period from 1760's to the 1840's, concentrating on the development of political ideas and practices. Topics will include the Enlightenment in America, the Revolution and its origins, the Constitution, the development of political parties, the Jeffersonian revolution, territorial expansion, and Jacksonian democracy.

**HI 306 • 3 credits****Civil War and Reconstruction**

The "peculiar institution," the debate over slavery, the Civil War, and Reconstruction.

**HI 307, 308 • 3 credits**  
**American Social and Intellectual History I and II**  
A study of the major currents of thought — religious, social and political — which have had an impact upon the development of American institutions and values.

**HI 309 • 3 credits**  
**American Entrepreneurial History**  
This course traces the development of American business and industry from the age of the colonial merchants, through the emergence of large scale industry in the nineteenth century into the modern era. It is primarily a business history course, focusing upon various industries and their development.

**HI 311 • 3 credits**  
**New England Maritime History**  
This course focuses its attention upon the relationship between this region and the sea. It is more local in its approach than the American Maritime History course, and treats coastal and foreign trade of individual ports, whaling, fishing and recreational industries. The decline of maritime New England is also treated, bringing the course into the most recent decades.

**HI 312 • 3 credits**  
**American Maritime History**  
A one-semester course examining the development of the American merchant shipping industry since colonial times, and its role in American political, economic and cultural history.

**HI 313 • 3 credits**  
**Territorial Expansion of the United States**  
A comprehensive study of the economic, political and social factors involved in the Westward movement of the American people.

**HI 314 • 3 credits**  
**History of Urban America**  
A survey of the emergence and development of the American city from 1607 to the present, focusing on the colonial city, immigration, nativism, industrialism, the political machine, the reformer, the emergence of the metropolis, and the ghetto.

**HI 317 • 3 credits**  
**History of European Women**  
This survey of Women's history from the Renaissance to the present will critically examine the recent scholarship on this topic. The course will deal both with remarkable and ordinary women. Extensive use will be made of recent research on the history of the family and social demography as well as the more traditional areas of political, intellectual, and economic history. While emphasizing Western Europe, the course will include some material from the Americas and other areas.

**HI 318 • 3 credits**  
**Women's Biography and Autobiography**  
This course will examine the lives of various women in the United States, Great Britain, and elsewhere both from a literary and historical perspective. Examples of women whose lives will be studied are: Charlotte Bronte, Sarah and Angelina Grimke, Chariotte Perkins Gilman,

Zelda Fitzgerald, Maxine Hong Kingston, and Maya Angelou.  
May be elected for credit in either history or English.

**HI 319 • 3 credits**  
**Early Modern Europe, 1600-1815**  
A survey of post-Renaissance European civilization to the 19th century. Emphasis on the growth of the modern state system, the origins of capitalist economies, the scientific revolution and Enlightenment, and the political history of the principal monarchies.

**HI 320 • 3 credits**  
**Revolutions and Revolutionary Movements**  
Analysis and interpretation of various revolutionary movements in European and World history. Explores attempts by historians, sociologists, political theorists, and revolutionaries to understand the nature and significance of revolutionary activity.

**HI 321 • 3 credits**  
**Ideas and Movements in 17th and 18th Century Europe**  
A survey of the intellectual history of Europe in the early modern period, including the growth of skepticism and the secularization of thought, the scientific revolution, the Enlightenment and the creation of a liberal climate of opinion, and the origins of modern political and economic theory.

**HI 322 • 3 credits**  
**Ideas and Movements in 19th and 20th Century Europe**  
An examination of such intellectual currents as romanticism, liberalism and

conservatism, nationalism, socialism and capitalism, and social Darwinism. Attention will be paid to the development and maturation of these currents in the 19th century, and their modification in the 20th century.

**HI 323 • 3 credits**  
**War and Diplomacy in the Modern World: French Revolution to World War I**  
This course will analyze the causes, prosecution and impact of warfare prior to World War I, including international relations and technological advancements. Emphasis will be placed on the development of mass armies, the relationship between domestic politics and international war, the wars of Imperialism and the social and economic underpinning of modern warfare.

**HI 324 • 3 credits**  
**War and Diplomacy in the Modern World: World War I to the Present**  
A study of the military and diplomatic history of warfare since World War I. Emphasis will be placed on the relationship between the peace settlement and the causes of World War II, the Cold War, and post-World War II revolutionary warfare.

**HI 325 • 3 credits**  
**European Overseas Expansion 1500-1800**  
Details European mastery of the oceans from the beginning of long-distance trade with Africa to colonization and empire-building in Asia and the Americas. Emphasis on the pioneering activities of Portugal and the competing interests of Spain, the Netherlands, France, and England.



**HI 326 • 3 credits****Modern Imperialism**

An evaluation of both the theory and practice of European imperialism from 1800 to the present. In addition to a study of the major modern empires, the course will treat the phenomenon of decolonization and informal empire. Emphasis will be placed upon a comparison of the major explanations of European imperialism with its historical reality.

**HI 327 • 3 credits****Topics in the History of Ideas**

Treats the history of ideas as an interdisciplinary approach to both intellectual history and the history of European society. Topics will vary with the instructor.

**HI 328 • 3 credits****Topics in the Social History of Modern Europe**

Selected topics in European social history since the French Revolution. Topics will vary with the instructor.

**HI 329 • 3 credits****Religion and Society in Early Modern Europe**

A survey of the impact of religious ideas and movements upon European history from the Reformation to the French Revolution. Examines the role of religious enthusiasm in the growth of revolutionary movements, in the rise of liberalism and capitalism, and in the political history and overseas expansion of the early modern states.

**HI 331 • 3 credits****The Renaissance**

A survey of political, economic, and cultural developments in Europe from 1300 to 1500 with special emphasis on Italy.

**HI 332 • 3 credits****The Reformation**

A survey of the background of the Reformation, the religious changes of the period, the role of reformers such as Luther, Calvin and Zwingli, and the effects of reform between 1500 and 1648.

**HI 333 • 3 credits****English History I**

A survey of the history of England to the period of the Civil Wars and the Revolution of 1688, with attention to social, economic, political and cultural changes.

**HI 334 • 3 credits****English History II**

The history of England from the Revolution of 1688 to the present, tracing the change from an agricultural, rural society to a modern, industrial world power.

**HI 335 • 3 credits****19th Century Britain**

An examination of the social, political, intellectual and economic transformation of Britain in the 19th century. Emphasis on social analysis of Victorian England, the evolution of the 19th century Empire, and the impact of empire upon internal developments.

**HI 336 • 3 credits****20th Century Britain**

A survey of British history from 1900 to the present. Emphasis will be placed upon a study of the welfare state, the impact of the world wars, the end of empire, and contemporary English society.

**HI 337 • 3 credits****English Constitutional History**

A survey of the legal and constitutional development of England from the Anglo-Saxon settlement to the Reform Bill of 1832. Attention to documents and other contemporary materials (in English). Recommended for pre-law students. Prerequisite: HI 333 and HI 334.

**HI 341 • 3 credits****France to 1789**

A survey of French history in the 17th and 18th centuries. Topics include the rise of the Bourbon monarchy, the reign of Louis XIV, the growth of religious and political dissent, the struggle for European hegemony and overseas empire, the cultural influence of France in the Enlightenment, and the crisis of the old regime.

**HI 342 • 3 credits****French Revolution and Napoleon**

A study of the Revolutionary and Napoleonic periods in French history, from the crisis of the old regime to the restoration of the Bourbon monarchy. Emphasis will be placed on political change and the revolutionary transformation of French society.

**HI 343 • 3 credits****France in the 19th Century, 1815-1914**

This course will examine the many changes of regime in France, the impact of revolutionary and counter-revolutionary politics, the Franco-Prussian War and the Third Republic, France's empire, and the development of capitalism and industrialization.

**HI 344 • 3 credits****France in the 20th Century**

A study of the impact of two major wars, Vichy and the Resistance, the decline of the Third and the establishment of the Fourth and Fifth republics, loss of Empire, and changing economic and political conditions.

**HI 347 • 3 credits****History of Italy in the 19th Century**

A detailed study of the Risorgimento, or movement for Italian unification. Attention will be given to economic and cultural life as well as political events.

**HI 348 • 3 credits****History of Italy in the 20th Century**

An analysis of the rise and fall of Italian fascism, including a study of Italy's participation in both World Wars.

**HI 351 • 3 credits****History of Germany to 1786**

A study of the development of the Germanic states from the founding of the First Reich in the 10th century to the death of Frederick the Great. Topics to be considered include: the development and nature of the medieval empire; the conflict with the Papacy; the Reformation; the Counter-Reformation; the spread of absolutism; the development of Prussia; the role of the Hapsburgs in German affairs.



**HI 352 • 3 credits**  
**History of Germany 1786 to 1890**

A study of Germany in the 19th century incorporating political, social and intellectual history. Topics to be considered include: the effects of the French Revolution and Napoleon on Germany; the Prussian reform movement; the growth of nationalism; important German philosophers and historians; the revolution of 1848; the role of Bismarck and the unification of Germany; Bismarck's foreign and domestic policy.

**HI 353 • 3 credits**  
**History of Germany from 1890 to 1933**

A study of Germany from the dismissal of Bismarck to the appointment of Hitler incorporating political, social and intellectual history. Topics to be considered in depth include: the nature of the Second Reich under William II; the effects of industrialization; the role of neo-romantic political thought; the growth of anti-Semitism; German foreign policy before World War I; World War I; the revolution of 1918; the development and collapse of the Weimar Republic.

**HI 354 • 3 credits**  
**History of Germany — 1933 to the Present**

A study of Germany from Hitler to the present day. Topics to be considered in depth include: the career and personality of Hitler; the growth of the Nazi Movement; the nature of the Nazi state; the origins of World War II; Germany's post-war recovery; the government, society and roles of the (West) German Federal Republic and the (East) German Democratic Republic.

**HI 356 • credits**  
**The Holocaust**

An examination of the Holocaust, including the psychosocial aspects of prejudice; the history of Jew hatred from Biblical times; the historical, political, racist, economic, social, psychological, literary, legal, theological, moral aspects of the Holocaust.

**HI 361 • 3 credits**  
**Russia to 1855**  
Survey of Russia from the 9th century to 1855. Stress will be given to political, social and economic developments.

**HI 362 • 3 credits**  
**Russia in Reform and Revolt, 1855-1918**  
Survey of Russia from 1855 to 1918. Emphasis will be on the great reforms, political and economic changes, the rise of revolutionary movements, the Revolution of 1905 and the Revolution of 1917.

**HI 363 • 3 credits**  
**History of the Soviet Union**  
Study of Russia from 1918 to the present. Stress will be given to the establishment of the Communist government, the Five Years Plans, and the social and cultural changes resulting from the adoption of Soviet ideology. Attention will be given to the role of Russia in the modern world.

**HI 364 • 3 credits**  
**Social and Cultural History of Russia**  
Survey of social classes, the development of serfdom, religion, art and literature in Russia from the 9th century to the present.

**HI 365 • 3 credits**  
**Eastern European History**  
The study of the Eastern European bloc from the Middle Ages to the present. Emphasis will be given to the political and economic development of these countries in the 19th and 20th centuries and the establishments of Communism in the post-World War II period.

**HI 370 • 3 credits**  
**Peasant Society and Revolution in Latin America**  
Deals topically with two of the most fundamental and revealing characteristics of Latin American civilization: heirarchical/paternalistic rural social structures, and apparent political volatility. Popular assumptions about Latin American society and political life will be investigated and evaluated.

**HI 371 • 3 credits**  
**History of Portugal**  
A survey from the Roman era to the present with emphasis on the post-medieval period. Topics include the emergence of a unified state, dynastic rivalries, the economy, overseas expansion and empire, constitutional development, the "New State" of Salazar, and the revolution of 1974.

**HI 374 • 3 credits**  
**Portugal and Spain in the 20th Century**  
This course provides a vehicle for comparative study of modern Spain and Portugal. In this century, political and economic similarities are apparent, including abrupt termination of ancient monarchical régimes, decades of one-man fascist rule, and economic dependency within Europe. Equal attention is given to the many cultural, linguistic, and historically-rooted differences which are politically significant indicators of regional diversity within the Iberian peninsula.

**HI 376 • 3 credits**  
**History of Brazil**  
Emphasis on the period since independence in 1822. Topics include the empire and slavery, coffee, European immigration, the republic, race and class, foreign economic and ideological influences, and Brazil in the 1970's.

**HI 378 • 3 credits**  
**Slavery in the New World**  
Deals with the trans-Atlantic slave trade and slavery in the Americas from the sixteenth to the nineteenth century. Emphasis on the beginning and development of the trans-Atlantic slave trade; moral issues, economics, and tactics of the trade; and, comparative study of the slave societies of Brazil, the Caribbean and the United States.

**HI 381 • 3 credits**  
**Modern Japan**  
A survey of modern Japan since the 19th century, with emphasis on post-war Japanese politics and Japan's present role in world affairs.

**HI 382 • 3 credits**  
**Modern China**  
A study of the major themes of modern Chinese history, including culturalism and nationalism, responses to the impact of the West, and the development of revolutionary ideology.

**HI 400 • 3 credits**  
**Seminars in History**  
Seminars will be offered variously in such fields as United States history, United States social and intellectual history, European history, English history, Russian history, Latin American history, Asian history and history of idea.

**HI 499 • 9 credits**  
**Honors Seminar**  
The writing of an honors research paper. Students may elect to take 3 credits one semester and 6 another.

# Humanities and Social Sciences

The program in Humanities and Social Sciences leading to a Bachelor of Arts Degree offers students the opportunity to broaden their understanding of the scope of human civilizations of the past and present, to develop their ability to think and write critically, all in the classical tradition of the liberal arts. This program prepares the student for a wide variety of career programs in the human services, the

professions, the corporate world, and, given its broad academic scope, provides a foundation for career changes and retraining when necessary. It is strongly recommended that undergraduates who enroll in the Humanities and Social Sciences concentration maintain close contact with their advisors in shaping their course selection around student interests and common problems studied by

the wide variety of academic disciplines included under the major. Of the 120 credits required by the university to graduate, it should be noted that at least 30 course credits must be completed in advanced and specialized courses (300 level and above) at or under the sponsorship of SMU. Students should usually file with the office of the Dean of the College of Arts and Sciences at the end of their freshman year.

Note: In fulfilling the necessary requirements below no courses may be used in more than one category. For example, the same Sociology course cannot be used to meet both the Social Science requirement under Category 5 and the Concentration requirement under Category 6.

		Credits
Category 1:	<b>Freshman English:</b> ENG 101, 102	6
Category 2:	<b>Literature</b> English Literature, Literature in a Foreign Language, or Foreign Literature in Translation. English and Foreign Literature and Languages Departments shall specify which courses shall satisfy the requirements.	6
Category 3:	<b>Natural Sciences</b> Courses taught in the Chemistry, Biology, Physics, and Medical Technology Departments or in other departments at the discretion of the Student's advisor.	9
Category 4:	<b>Humanities</b> No more than 6 credits from any one field. Choose from:  History Philosophy (including logic) Art and Music (excluding applied courses) Foreign Language (including first year 101-102, but excluding literature)	12
Category 5:	<b>Social Sciences</b> No more than 6 credits from any one field. Choose from: Economics Political Science Psychology Sociology/Anthropology	12
<b>Total:</b>		<b>45</b>



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<b>Category 6:</b>	<b>Concentration</b>	36
	After completing all distribution requirements in Categories 1 through 5 listed above, students should further consult their advisor and select courses from the Humanities and Social Sciences.	
	The following should be noted:	
	1. At least two areas must be selected in Humanities and two areas in the Social Sciences.	
	2. A minimum of 6 credits must be taken in each of the four areas selected.	
	3. The areas are:	
	<b>Humanities</b>	
	English	
	Foreign Literature	
	History	
	Philosophy	
	<b>Social Sciences</b>	
	Economics	
	Political Science	
	Psychology	
	Sociology/Anthropology	

<b>Category 7:</b>	<b>Free Electives</b>	39
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Note: To graduate, a total of 120 credits is required. This includes the satisfactory completion of at least 30 course credits in advanced and specialized courses (300 — level and above) at or under the sponsorship of SMU.

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## Faculty and Fields of Interest

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**John Chandy** • algebra

**Michael Crowley** • analysis

**Jerome Freier** • partial differential equations, numerical methods

**Warren Holt** • statistics

**Anthony J. John (chairperson)** • applied analysis, differential equations

**James Kaput** • algebra, math-education and the philosophy of mathematics

**Robert Kowalczyk** • probability, numerical analysis, computer applications

**Steven Leon** • numerical analysis, linear algebra

**Robert McCabe** • analysis

**Walter Mierzejewski** • statistics and computer applications

**Paul Parente** • applied mathematics

**Louis Simeone** • analysis

**Samuel Stone** • analysis

**Ronald Tannenwald** • dynamical systems

**Rufus A. Winsor** • math education and developmental mathematics

**Fred Wolock** • statistics, operations research

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## Mathematics Major

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The Mathematics program outlined below lists the minimum requirements for the degree of Bachelor of Arts in Mathematics. Students may elect to earn a Bachelor of Science degree provided that they take an additional six (6) credits of Natural Science (but only courses that the science departments themselves would credit to a major in their areas). The humanities/social science requirements for the B.S. degree are a combined total of eighteen (18) credits.

The program for mathematics majors is designed to provide a solid foundation in the theoretical and applied aspects of mathematics necessary for a variety of professional careers. The flexibility within the third and fourth years was established to enable the mathematics major to concentrate in areas of their interest. For example, you may use our offerings as preparation for:

1. Secondary school teaching.
2. Graduate school in mathematics, applied mathematics, or computer science.
3. A career in applied mathematics in either the public or private sector.
4. Graduate school in an area that uses mathematics such as economics, biology or psychology.

At the end of the sophomore year, students, aided by their faculty advisors, should plan a course of study for the completion of the college program. The advanced courses selected during the third and fourth years should be consistent with the students' interests and goals. The above list is intended as illustrative only. Some mathematics majors have had success in law school, pharmaceutical school and medical school.

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**Requirements**

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First Year			Semester Credits:	First	Second
MA	111	112	Analytic Geometry and Calculus I & II	4	4
MA	131		Introductory Mathematics		3
MA	132		Introduction to Computers and their Applications to Mathematics	3	
ENG	101	102	Freshman English	3	3
			Humanities, Social Science or Free Electives	6	6
				16	16

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Second Year			Semester Credits:	First	Second
MA	211		Analytic Geometry and Calculus III	4	
MA	212		Differential Equations		3
MA	221		Linear Algebra		3
MA	261		Foundations of Mathematics	3	
PH	111	112	Physics I and II	3	3
PH	121	122	Physics Laboratory	1	1
			Literature	3	3
			Humanities, Social Science or Free Electives	3	3
				17	16

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Third Year			Semester Credits:	First	Second
Mathematics Electives*				6	6
Humanities or Social Sciences				3	3
Unspecified Electives				6	6
				15	15

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Fourth Year			Semester Credits:	First	Second
Mathematics Electives*				3	3
Humanities or Social Science				3	3
Unspecified Electives				7	6
				13	12

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\*The 18 credits (6 courses) of mathematics electives in the third and fourth years must be chosen from among courses on the following list. Three credits may be waived for students in a teaching internship program.

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### Mathematics Electives

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MA 209	Modern Mathematics for Secondary School Teachers	T
MA 262	APL Programming and Applications	A
MA 302	Theory of Numbers	T
MA 311 312	Advanced Calculus I, II	T,G,A
MA 321 322	Topics in Applied Mathematics I, II	A,G
MA 331	Statistical Methods I	A,G
MA 332	Statistical Methods II	A,G
MA 353	Applied Linear Algebra	A
MA 361 362	Numerical Analysis I, II	A,G
MA 421	Functions of a Complex Variable	A,G
MA 441 442	Modern Algebra I, II	A,G
MA 443	Applied Modern Algebra	A,G
MA 451	Differential Geometry	G
MA 452	Higher Geometry	G,T
MA 461	Elementary Topology	G
MA 471	Probability	A,G
MA 472	Mathematical Statistics	A,G
MA 487	Math Inquiry I	T,G
MA 488	Math Inquiry II	T,G
MA 499	Selected Topics in Mathematics	

#### \*Code

T—recommended for students preparing to teach

G—recommended for students preparing for graduate school

A—recommended for students in applied mathematics

Total number of credits necessary to graduate: 120

The mathematics department offers its electives according to the following schedule:

#### Odd Numbered Years

##### Fall Semester

MA 209  
MA 262  
MA 311  
MA 321  
MA 331  
MA 361  
MA 441

##### Second Semester

MA 302  
MA 312  
MA 322  
MA 332  
MA 362  
MA 442  
MA 487

#### Even Numbered Years

##### Fall Semester

MA 262  
MA 311  
MA 321  
MA 331  
MA 353  
MA 441  
MA 461

##### Second Semester

MA 312  
MA 322  
MA 332  
MA 421  
MA 443  
MA 451 or 452  
MA 488

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# Computer Oriented Mathematics Program (COMP)

## Requirements

In order to meet the needs of our present-day computer-oriented society, the Mathematics Department presently offers an alternative to the mathematics major program of study — a computer-oriented mathematics program leading to the B.S. degree in Mathematics. This program requires a core of computer science courses and emphasizes the applied mathematics areas more than the mathematics program. This program allows the student a large choice of electives within the context of computer-oriented mathematics. The student can thus pursue his special interests in any particular phase of computer-oriented mathematics.

The program has virtually the same freshmen and sophomore years as the other programs in mathematics, computer science, computer engineering and electrical engineering. This allows a student to find his interests and make his final choice from among these before the end of the second year without any loss of time.

A B.S. degree in Mathematics (COMP) allows the student to enter graduate programs that specialize in computer-oriented mathematics or enter industrial employment where physical and industrial problems are analysed mathematically.

The program offers a large choice of electives within the context of computer-oriented mathematics. The student can thus pursue his special interests in any particular phase of computer-oriented mathematics.

First Year			Semester Credits:	First	Second
MA	111	112	Analytic Geometry and Calculus I & II	4	4
MA	132		Introduction to Computers	3	
CS	262		Introduction to Computer Science		3
ENG	101	102	Freshman English I & II	3	3
CH	151	152	Principles of Modern Chemistry I & II	4	4
	or				
BO	121	122	Biology of Organisms I & II		
BO	131	132	Biology of Organisms Lab I & II (optional)		
			Humanities or Social Science	3	3
				17	17
Second Year			Semester Credits:	First	Second
MA	211		Analytic Geometry and Calculus III	4	
MA	212		Differential Equations I		3
MA	221		Linear Algebra	3	
MA	263		Discrete Structures		3
PH	111	112	Physics I: Mechanics;		
			Physics II: Waves and Optics	3	3
PH	121	122	Lab I: Mechanics		
			Lab II: Waves and Optics	1	1
CS	263		Data Structures	3	
CS	264		Program Languages		3
			Humanities or Social Science	3	3
				17	16
Third Year			Semester Credits:	First	Second
MA	311	312	Advanced Calculus I & II	3	3
MA	331	332	Statistical Methods I & II	3	3
			Technical Course*	3	3
			Free Elective	3	3
			Literature	3	3
				15	15
Fourth Year			Semester Credits:	First	Second
			Technical Course*	6	6
			Humanities or Social Science	3	3
			Free Electives	6	6
				15	15

\*The 18 credits (6 courses) of technical courses in the third and fourth years must be chosen from among courses on the following list:

Technical Courses		Graduate Program	Mathematics Courses	
MA 361	Numerical Analysis I	<p>The graduate program in mathematics is intended to be a terminal course in mathematics that is useful for both industry and teaching. A student beginning study for an M.S. in mathematics will meet with a faculty advisor, and a program of study will be developed. It is expected that the courses will be basically from the applied mathematics offerings, although theory courses will be available. Also, the student will be allowed to take courses in computer science (at the graduate level) which are offered in the Department of Electrical Engineering (maximum of 6 hours, except by special permission). Students receiving their M.S. degrees will be prepared for work in industry, with applied courses of use in industry, such as Statistics, Operations Research, Mechanics and Computer Science. (For full information about the Graduate Program, see the Graduate Catalogue.)</p>	<b>MA 101 • 3 credits</b> <b>Elements of College Mathematics I</b> MA 101, 102 is a terminal course for students whose curriculum calls for one year of mathematics; It is also a prerequisite for MA 231. The first semester covers selected topics from algebra, set theory, matrix algebra, and elementary functions.	
MA 362	Numerical Analysis II			
MA 353	Applied Linear Algebra			
<b>Plus one of the following:</b>				
MA 421	Complex Analysis			<b>MA 102 • 3 credits</b> <b>Elements of College Mathematics II</b> Introduction to differential and integral calculus. Prerequisite: MA 101 or MA 103.
MA 463	Math Modelling			
MA 464	Simulations			
MA 443	Applied Modern Algebra			<b>MA 103 • 3 credits</b> <b>Finite Mathematics</b> Will cover selected topics from: Logic, Set Theory, Vectors and matrices, Linear Programming, Probability, Graphs and Theory of Games. May be taken in lieu of MA 101. Prerequisite: Four (4) years of high-school college-prep math.
CS 363	Operating Systems			
CS 364	Systems Programming			
EE 361	Digital Logic and Design			
EE 365	Microprocessor			
EE 461	Computer Architecture I			
EE 462	Computer Architecture II			<b>MA 104 • 3 credits</b> <b>Fundamentals of Statistics</b> This course will be developed around the mathematical techniques involved in: Organizing data, averages and variation, elementary probability theory, the binomial distribution, normal distributions and related topics, estimation, hypothesis testing, regression and correlation, Chi Square: tests of independence, Chi Square: goodness of fit and analysis of variance: comparing several sample means.



**MA 105 • 3 credits**  
**Technical Calculus I**

First semester of a four-term calculus sequence required of technology students and recommended for non-physical science majors desiring a basic introduction to analysis. The first term will review those topics from algebra and trigonometry needed in the sequel. Then the basic concepts of the differential calculus will be studied.

**MA 106 • 3 credits**  
**Technical Calculus II**

Continuation of MA 105. Further study of algebraic and transcendental functions of one variable and topics from the integral calculus of these functions.  
Prerequisite: MA 105

**MA 107 • 3 credits**  
**Modern Math and Methods for Elementary Teachers I**

A course designed to enable teachers to cope with the problems of the changing modern mathematics curriculum. Current issues, attitudes and learning theories will be studied, including the mathematical foundations of the elementary school curriculum. The course is classroom oriented and makes heavy use of films and lab materials.

**MA 111 • 4 credits**  
**Analytic Geometry and Calculus I**

First semester of a four term sequence required of majors in mathematics, the physical sciences and engineering. Recommended for others desiring a thorough background in elementary analysis. Term I will cover topics in analytic geometry, the concepts of function and

limit, continuity, differentiability and integrability of elementary algebraic and transcendental functions. Techniques of differentiation and applications will then be studied.

**MA 112 • 4 credits**  
**Analytic Geometry and Calculus II**

Continuation of MA 111. Topics from the integral calculus, stressing techniques of integration (including numerical methods). Infinite series.  
Prerequisite: MA 111.

**MA 131 • 3 credits**  
**Introductory Mathematics**

A course designed to expose the Mathematics major to the various topics of Finite Mathematics. The course will cover selected topics from the areas of Matrix Theory, Linear Programming, Probability, Markov Chains and Game Theory.

**MA 132 • 3 credits**  
**Introduction to Computers and their Application to Mathematics**

Required of mathematics majors and highly recommended for all students in the physical, natural, and behavioral sciences. The course covers topics in computer fundamentals, FORTRAN computer language, mathematical problem formulation and the solution of numerical and non-numerical problems. Students will write several programs to find solutions to various elementary mathematical problems.

**CS 201 • 3 credits**  
**Computer Literacy**

This course provides an introduction to computers, the history of computers, and the social, political and philosophical impact of computers on society. Numerous computer systems (including personal computers) and computer applications will be studied. The question of artificial intelligence will be examined. This course also introduces an elementary programming language (BASIC) and canned programs.

**MA 203 • 3 credits**  
**Technical Calculus III**

Continuation of MA 106. Topics include conic sections, polar coordinates, functions of two variables, partial differentiation, multiple integration and infinite series.  
Prerequisite: MA 106.

**MA 204 • 3 credits**  
**Elementary Differential Equations**

Techniques in the solutions of ordinary differential equations, and applications from engineering. Similar to MA 212 with less emphasis on theory and more on applications. The natural continuation of MA 203.  
Prerequisite: MA 203.

**MA 209 • 3 credits**  
**Modern Math for Secondary School Teachers**

Designed for present and future teachers, the course emphasizes mathematics and problem-solving. Included will be critical readings and discussion of past and present trends in the teaching of mathematics at the secondary level.

**MA 211 • 4 credits**  
**Analytic Geometry and Calculus III**

Continuation of MA 112. Two and three dimensional vectors, partial differentiation, multiple integrals and applications.  
Prerequisite: MA 112.

**MA 212 • 3 credits**  
**Differential Equations I**

Continuation of MA 211. Ordinary differential equations of the first order, linear differential equations of the  $n$ th order, some non-linear second order equations, series solutions and Laplace Transforms.  
Prerequisite: MA 112.

**MA 221 • 3 credits**  
**Linear Algebra**

Required of all second-year mathematics majors and recommended for students in the physical, natural, behavioral and management sciences. Course material includes Systems of Linear Equations, Matrix Theory, Vector Spaces, Linear Transformations, Eigenvalues.

**MA 231 • 3 credits**  
**Elementary Statistics I**

This is a course in fundamental business statistics. The text, examples, and applications are all business-oriented. The first-semester topics include Descriptive Statistics, Probability, Estimation, Statistical Inference and Sampling.

**MA 232 • 3 credits**  
**Elementary Statistics II**

Continuation of MA 231. Regression and correlation analysis. Analysis of variance. Goodness-of-fit tests. An introduction to Bayesian decision methods.  
Prerequisite: MA 231.

**MA 261 • 3 credits**

**Foundations of Mathematics**  
Required of all second year mathematics majors and recommended for students wishing an insight to the rudiments of abstract mathematics. Retracing of geometry and other topics from an advanced view point. Discussion of the axiomatic method, and a development of a small mathematical system.  
Prerequisite: MA 111.

**MA 262 • 3 credits****APL Programming and Applications**

Recommended for mathematics, physics, natural science, education and management majors. The course includes a half semester of intensive study of APL. Later the student pursues a project in his area of interest. Projects are as varied as the computer simulation of baseball games, heat flow, atomic radiation, the analysis of stock portfolios and others.  
Prerequisite: Permission of Instructor.

**MA 263 • 3 credits****Introduction to Discrete Structures**

Review of set algebra including mappings and relations, algebraic structures including semigroups and groups. Elements of the theory of directed and undirected graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computers.

**MA 271 • 3 credits****Astronomy I**

The course begins with a survey of astronomy from ancient to modern times. The first semester briefly reviews ancient astronomy and the physics of orbiting bodies. The earth, moon, and solar system are dealt with in some detail. The course concludes with a survey of the other bodies of the solar system; viz. minor planets, comets, and meteors.  
Prerequisites: MA 102 or MA 111.

**MA 272 • 3 credits****Astronomy II**

This course concentrates on measurement in space and stellar motions. Stellar spectra, binary stars and the galaxy are studied. The latter segment of the course discusses stellar energy. The course concludes with a study of the origin and evolution of the universe.  
Prerequisite: MA 271.

**MA 295 • 3 credits****Celestial Navigation**

The object of this course is to enable the student to determine his geographical co-ordinates using the celestial observations. Bubble sextants using the artificial horizon are employed. Various techniques for solving the astronomical triangle will be discussed with emphasis on the solution using H.O. 249. Special attention will be given to star identification as this relates to navigational stars.  
Prerequisite: Permission of instructor

**MA 302 • 3 credits****Theory of Numbers**

A study of integers, divisibility properties, diophantine equations, congruences, quadratic residues, Pythagorean triangles and selected topics.

**MA 311 • 3 credits****Advanced Calculus I**

A rigorous analysis of the concepts of limits, continuity, the derivative, the Riemann integral, and uniform convergence.

**MA 312 • 3 credits****Advanced Calculus II**

Continuation of MA 311 with emphasis on functions of several variables, line and surface integrals and complex variables.  
Prerequisite: MA 311.

**MA 321 • 3 credits****Topics in Applied Mathematics I**

This course covers a study of Fourier Series and Integrals, Fourier and Laplace Transforms, Partial Differential Equations.  
Prerequisite: MA 212.

**MA 322 • 3 credits****Topics in Applied Mathematics II**

Continuation of MA 321. This course covers Bessel Functions and Legendre Polynomials; Calculus of Variations, Vector Analysis.  
Prerequisite: MA 321.

**MA 331 • 3 credits****Statistical Methods I**

A calculus-based introduction to statistics. Probability and combinatorial problems. Discrete and continuous random variables. Various distributions including the binomial, Poisson, hypergeometric normal, gamma and chi-square. Moment

generating functions, transformations and sampling distributions.

Prerequisite: MA 112.

**MA 332 • 3 credits**  
**Statistical Methods II**  
**Continuation of MA 331.**

Classical estimation methods. Hypothesis testing. Chi square tests for goodness-of-fit and independence. Regression and correlation analysis. One way and two-way analysis of variance including factorial designs and tests for the separation of means.  
Prerequisite: MA 331.

**MA 353 • 3 credits****Applied Linear Algebra**

Eigensystems, Unitary transformations, Similarity transformations, Quadratic Forms and Variational Procedures.

**MA 361 • 3 credits****Numerical Analysis I**

Theory and computer-oriented practice in obtaining numerical solutions of various problems. Topics include: Stability and Conditioning, Nonlinear Equations, Systems of Linear Equations, Interpolation and Approximation theory.  
Prerequisite: MA 212 and MA 132.

**MA 362 • 3 credits****Numerical Analysis II**

Numerical methods for solving initial value problems. Topics include: Numerical Differentiation and Integration, Euler Method and Taylor's Series Method, Runge-Kutta Methods, Multi-step methods, and Stiff Equations.  
Prerequisite: MA 361



**MA 421 • 3 credits****Complex Analysis**

Analytic functions, differentiation, integration, conformal mapping, calculus of residues and infinite series.

Prerequisite: MA 312.

**MA 441 • 3 credits****Modern Algebra I**

The study of relations, functions, groups, rings and fields.

Prerequisite: MA 261.

**MA 442 • 3 credits****Modern Algebra II**

This course deals primarily with the following: Sylow Theorems, Polynomials, Field Extensions and Galois Theory.

Prerequisite: MA 441.

**MA 443 • 3 credits****Applied Modern Algebra**

Finite state machines and algebraic coding theory. Applications to Computer and Information Science.

Prerequisite: MA 441.

**MA 451 • 3 credits****Differential Geometry**

Analysis of curves and surfaces. Frenet-Serret formulae. First and second fundamental forms for surfaces. Gaussian and mean curvature. Theorems of Meusnier and Rodrigues. Gauss-Bonnet Theorem.

Prerequisite: MA 312.

**MA 452 • 3 credits****Introduction to Higher Geometry**

A survey of the history of geometry, emphasizing the scholars of antiquity. Topics from modern (college) geometry, projective and non-Euclidean geometries.

Prerequisite: MA 211.

**MA 461 • 3 credits****Elementary Topology**

An introduction to point-set and combinatorial topology.

Prerequisite: MA 312.

**MA 463 • 3 credits****Math Modelling**

Selected topics from the areas of Linear Programming, Dynamic Programming, Markov Chains and Game Theory. Mathematical model building will be developed through the use of numerous case studies from the natural and social sciences, e.g., ecological models, network models, scheduling models, Urban structure, traffic flow, growth, etc.

**MA 464 • 3 credits****Simulations**

Deterministic and nondeterministic simulation. Random number generators, Monte Carlo techniques, discrete simulation techniques and simulation computer languages (e.g., GPSS, SIMSCRIPT). Standard Simulations Models, such as the national economy model, inventory control, banking, blackjack, etc., will be studied.

**MA 471 • 3 credits****Probability**

Review of topics in MA 331 at a more advanced mathematical level, and an introduction to Stochastic Processes.

Prerequisite: MA 332.

**MA 472 • 3 credits****Mathematical Statistics**

Review of topics in MA 332 at a more advanced mathematical level and from a decision theoretic point of view.

Prerequisite: MA 471.

**MA 487 • 3 credits****Mathematical Inquiry I**

Course is conducted as a seminar. An elementary question is posed to the students who must generate their own mathematics in an attempt to find a solution. The aim is to develop student independence and creativity.

Prerequisite: MA 212.

**MA 488 • 3 credits****Mathematical Inquiry II**

A second semester of inquiry, independent of the first.

Prerequisite: MA 212.

**MA 499 • 3 credits****Selected Topics in Mathematics**

A special course to meet the needs of students for material not encountered in other courses. Topics dealt with require the approval of the departmental chairman.

Prerequisite: MA 212 and permission of department.

**MA 501 • 3 credits****Functions of a Complex Variable I**

This course consists of integration, differentiation, analytic continuation and power series of functions of a complex variable. Also included are entire and meromorphic functions, residue theory and conformal mapping with applications.

Prerequisite: Permission of Department.

**MA 502 • 3 credits****Functions of a Complex Variable II**

Continuation of MA 501.

Prerequisite: MA 501.

**MA 505 • 3 credits****Probability**

A rapid but thorough presentation of Combinatorial Analysis and Discrete Probabilities Distribution Theory

and the mathematical

foundations of probability from a measure theoretic point of view. Introduction to Stochastic Processes.

Prerequisite: Permission of Department.

**MA 506 • 3 credits****Decision Theory**

Statistical inference from a decision theory point of view. A mathematical and philosophical discussion of the foundations of Bayesian Statistics and Decision Theory, with applications to illustrate the process of decision making.

Prerequisite: MA 505.

**MA 511 • 3 credits****Algebra I**

Groups, ring fields, Galois Theory, Unique Factorization domains.

Prerequisite: Permission of Department.

**MA 512 • 3 credits****Algebra II**

Modules, Multilinear Algebra.

Prerequisite: Permission of Department.

**MA 521 • 3 credits****Probability**

Continuation of MA 471, with emphasis on Combinatorial Theory and greater extension into Markov Chains; and Stochastic Processes, such as Poisson, Pure Births, Birth and Death, Exponential Holding Times, and Waiting Line and Servicing Problems. Distribution Theory and discussion of change of variable technique, with applications to special distributions.

Prerequisite: Permission of Department



**MA 522 • 3 credits**  
**Statistics**

Theory of estimation, with discussion of Interval Estimation, Order Statistics, Limiting Distributions, Sufficient Statistics, Point Estimation, and Statistical Hypotheses. Introduction to other Statistical theory such as Analysis of Variance, Linear Statistical Models, and Non-Parametric Statistics. Prerequisite: Permission of Department

**MA 531 • 3 credits**  
**Ordinary Differential Equations**

Review of elementary methods of integration of first-order, second-order linear, and nth order linear constant-coefficient differential equations. Theorems of existence, uniqueness and continuity, in the small and large. Study of plane autonomous systems. Approximate solutions and the theory of effective numerical integration. Sturm-Liouville theory. Prerequisite: Permission of Department

**MA 541 • 3 credits**  
**Operations Research I**

A study of Mathematical Programming, including Linear Programming in a variety of situations, sensitivity analysis, and network analysis. Dynamic Programming with relation to Linear Programming and Network Analysis, as well as special Dynamic Programming Techniques. Introduction to Applied Probability problems. Prerequisite: Permission of Department

**MA 542 • 3 credits**  
**Operations Research II**  
Continuation of Operations Research I with particular

emphasis on Queuing Problems, Inventory Theory, Applied Markov Processes, and Simulation. Special topics in the Mathematical Programming such as integer and Non-Linear Programming. Prerequisite: MA 541

**MA 551 • 3 credits**  
**Calculus of Variations**

Variational problems without constraints. Gateaux variation of a functional. Weak and strong relative extreme values. The Euler-Lagrange equations. Transversality conditions. Hamilton-Jacobi theory and Pontryagin's Maximum Principle with applications to optimal control problems. The Lagrange multiplier rule for the problem of Meyer and its application to the problem of Lagrange and the isoperimetric problem. The Weierstrass necessary condition for a weak relative minimum. Prerequisite: Permission of Department

**MA 552 • 3 credits**  
**Integral Equations**

Volterra equations of the first and second kind and their relationship to linear differential equations. Fredholm's equations with Pincherle-Goursat Kernels. The Fredholm theorem for general kernels. Numerical solution of integral equations. The Fredholm solution of the Dirichlet problem. Symmetric kernels and orthogonal systems of functions. Prerequisite: Permission of Department

**MA 601 • 3 credits**  
**Functions of a Real Variable I**

This course consists of topics in modern analysis including measure theory. Tiemann, Lebesgue and

Stieltjes integrals. Applications to orthogonal expansions. Prerequisite: Permission of Department

**MA 602 • 3 credits**  
**Functions of a Real Variable II**  
Continuation of MA 601.

Prerequisite: MA 601.

**MA 603 • 3 credits**  
**Functional Analysis**

Review of Lebesgue integral. Study of specific examples of Hilbert and Banach Spaces. Abstract characterization of spaces. Applications to integral equations and partial differential equations. Prerequisite: MA 602.

**MA 611 • 3 credits**  
**General Topology**

The basic aspects of general topology are studied. Among the topics considered are axiomatic set theory, metric spaces, compactness, continuing mappings. Prerequisite: Permission of Department

**MA 612 • 3 credits**  
**Combinatorial Topology**

The combinatorial aspects of topology are studied. The topics include group properties, homology, homotopy and manifolds. Prerequisite: Permission of Department

**MA 621 • 3 credits**  
**Partial Differential Equations**

First order differential equations are studied. Higher order equations are classified into elliptic, hyperbolic and the general properties of each type are studied. Existence and uniqueness theorems are given. Prerequisite: Permission of Department

**MA 622 • 3 credits**  
**Partial Differential Equations**  
Continuation of MA 621.

Prerequisite: MA 621.

**MA 645 • 3 credits**  
**Group Theory**

Subgroups, homomorphisms and Isomorphism theorems, finite groups, p-groups, solvable and nilpotent groups, free groups, free products, group extensions and homological algebra. Prerequisite: Permission of Department

**MA 647 • 3 credits**  
**Theory of Rings**  
Prerequisite: MA 645.

**MA 651 • 3 credits**  
**Topics In Numerical Analysis I**

Topics Include: Error propagation, function approximation, numerical linear algebra and non-linear equations.

**MA 652 • 3 credits**  
**Topics In Numerical Analysis II**

Topics include: Numerical integration and differentiation, differential equations, partial differential equations and boundary valued problems.

**MA 670 • 3 credits**  
**Methods of Mathematical Physics and Engineering I**

**MA 671 • 3 credits**  
**Methods of Mathematical Physics and Engineering II**

**MA 701**  
**Seminar**

**MA 702**  
**Seminar**

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## Faculty and Fields of Interest

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**Eileen Carreiro-Lewandowski** • clinical chemistry, biochemistry, laboratory regulation.

**Joan Felder (chairperson)** • human genetics, health manpower and health education

**James Griffith** • microbiology, health legislation, and quality control

**Susan Leclair** • hematology, health planning

**Catherine Sheehan** • immunology, special chemistry

Graduates in Medical Technology are eligible for national certification. Careers are available in hospital, industrial, public health and private laboratories as scientists, researchers, educators and administrators as well as in educational institutions and health care agencies. Varied graduate opportunities are available.

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**Requirements for the Classes Through 1983**


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<b>First Year</b>				<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
MT	111		Medical Technology Seminar		1	
BO	221	222	Anatomy and Physiology		3	3
CH	151	152	Principles of Modern Chemistry		3	3
CH	163		Quantitative (Analytical) Chemistry			2
MA	103	104	Finite Mathematics, Fundamentals of Statistics		3	3
ENG	101	102	Freshman English		3	3

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<b>Second Year</b>				<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
CH	251	252	Organic Chemistry		3	3
CH	263	264	Bio-organic Chemistry Laboratory		1	1
MT	315		Human Genetics		4	

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<b>Third Year</b>				<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
PH	101	102	General Physics		3	3
MT	301		General Microbiology		4	
MT	302		Medical Bacteriology			4
MT	311		Seminar		1	
MT	305		Clinical Immunobiology			3

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Ninety credits are required prior to entering the Hospital School of Medical Technology.

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<b>Fourth Year</b>	<b>Semester Credits</b>
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Courses to be taken in affiliated hospital schools of Medical Technology.

MT	401	Clinical Microbiology I	4
MT	402	Clinical Microbiology II	4
MT	409	Immunohematology I	2
MT	410	Immunohematology II	2
MT	419	Clinical Biochemistry I	4
MT	420	Clinical Biochemistry II	4
MT	429	Hematology I	3
MT	430	Hematology II	3
MT	439	Clinical Microscopy	2
MT	449	Special Laboratory I	2
MT	450	Special Laboratory II	2

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No student will be assigned to the fourth year program in an affiliated hospital unless he has a science cumulative grade point average of 2.6 or better and has the approval of the Department Affiliations Committee. The university cannot guarantee placement in the fourth year clinical affiliates.

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## Requirements Beginning with the Class of 1985

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### Pre-Medical Technology

First Year			Semester Credits:	First	Second
MT	111	Medical Technology Seminar		1	
MT	113	Introduction to Clinical Laboratory Techniques		1	
BO	111	Introduction to Human Physiology		4	
CH	151, 152	Principles of Modern Chemistry		3	3
CH	163	Quantitative Chemistry I			2
MA	104	Fundamentals of Statistics			3
PH	101, 102	Introduction to Physics I, II		3	3
ENG	101, 102	Freshman English		3	3
		Humanities/Social Sciences/Literature*			3
				15	17

Second Year			Semester Credits:	First	Second
MT	315	Human Genetics and Lab		4	
MT	226	Pathophysiology and Lab			4
CH	251	Organic Chemistry		3	
CH	263	Bio-organic Chemistry Lab		1	
MT	360	Clinical Chemistry Applied to Diagnostic Techniques			4
		Humanities/Social Sciences/Literature*		6	6
				14	14

### Integrated Program of Medical Technology

Third Year			Semester Credits:	First	Second
MT	301 302	General Microbiology; Medical Bacteriology		4	4
MT	305	Clinical Immunobiology		4	
		Humanities/Social Sciences/Literature*		6	3
		Free Electives		3	7
				17	14

Fourth Year			Semester Credits	
MT	401	Clinical Microbiology I		4
MT	402	Clinical Microbiology II		4
MT	409	Immunohematology I		1
MT	410	Immunohematology II		2
MT	419	Clinical Biochemistry I		4
MT	420	Clinical Biochemistry II		4
MT	429	Hematology I		2
MT	430	Hematology II		3
MT	449	Special Lab I		2
MT	450	Special Lab II		2
PI	215	Ethics		3
				31

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Additional courses will be added if so required by the National Accrediting Agency of Clinical Laboratory Sciences.

A total of 122 credits is required

\*Humanities - Social Sciences

A minimum of 6 credits must be taken in each of these areas with a total of 18 credits required. The Humanities include: History, Philosophy, Foreign Language (excluding Literature) and Art and Music (excluding applied courses.) The Social Sciences include: Economics, Political Science, Psychology and Sociology.

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Literature	Free Electives	Cytotechnology Option
Six (6) credits of Literature approved by the Departments of English and Foreign Literature and Language.	Students may elect any available course for which they qualify. Pre-medical technology students may wish to select their elective courses to provide the basis for a particular Medical Technology specialty or so as to be eligible for another major of their choice should they change their career plans.	Graduates in Cytotechnology Option are eligible for national certification. Careers are available in hospital, public health and private laboratories as well as in women's centers as scientists, educators and administrators.

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### Requirements for Cytotechnology Option

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First Year			Semester Credits:	First	Second
MT	111	Medical Technology Seminar		1	
CH	151 152	Principles of Modern Chemistry		3	3
MA	103 104	Finite Math and Fundamentals of Statistics		3	3
		Electives and Distribution Requirements		8	9
				<hr/> 15	<hr/> 15

Second Year			Semester Credits:	First	Second
MT	315	Human Genetics		4	
BO	221 222	Anatomy and Physiology		3	3
BO	223 224	Anatomy and Physiology Lab		1	1
		Electives and Distribution Requirements		7	11
				<hr/> 15	<hr/> 15

Third Year			Semester Credits:	First	Second
MT	301	General Microbiology		4	
MT	312	Medical Technology Seminar II			2
MT		Electives		3	3
PI	318	Bioethics		3	
		Electives and Distribution Requirements		5	10
				<hr/> 15	<hr/> 15

### Fourth Year

Thirty (30) credits from an AMA, National Accrediting Agency for Clinical Laboratory Sciences approved hospital school of cytotechnology.

Students must meet all college and university distribution requirements for a B.S. degree.

No student will be assigned to the fourth year of the option in an affiliated hospital unless he has the approval of the Department Affiliation Committee. The University cannot guarantee placement in the clinical affiliates.

Clinical fees are established by each affiliate. Students are required to pay this fee in addition to the usual university tuition.

Students are accepted into the Pre-medical Technology Program and apply for the Cytotechnology Option the junior year.

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## General Information

### Entrance to Pre-Medical Technology Program

Admission to the Pre-Medical Technology Program is arranged by the University Office of Admissions. In addition to the general course requirements for admission, the Department of Medical Technology more specifically requires 2 units of Natural Science and 3 units of College Preparatory Mathematics which must include 2 units of algebra.

### Entrance to Integrated Medical Technology Program

Admission to the Integrated Medical Technology Program requires the completion of all prerequisites in the Pre-Medical Technology Program and a science grade point average of 2.6. Review of all records of Pre-Medical Technology Students will take place in the second semester of the sophomore year.

Admission of qualified applicants to the Integrated Medical Technology Program may be limited by the availability of faculty and clinical facilities. In the event that the number of qualified applicants exceeds available resources, students will be selected on the basis of academic standing.

### Admission of Transfer Students, Certified Medical Laboratory Technicians and Certified Medical Technologists

All students seeking admission to the Integrated Medical Technology Program must meet the same entrance requirements as those who apply to the Pre-Medical Technology Program. Credits earned in another college may be accepted as transfer credits after evaluation of official transcripts. All Medical Technology courses must be taken at Southeastern Massachusetts University.

### Health Policies

Prior to the start of the junior year, all students in the Integrated Medical Technology Program are expected to have a complete physical examination and the appropriate immunizations.

### Academic Regulations

Each Medical Technology course must be satisfactorily completed with a C- (1.7) or better in order to enroll in another Medical Technology course. A failed course may be repeated once on the basis of space availability.

Each Medical Technology course, excluding seminars, consists of two components:

- 1) Theory and 2) Laboratory practice
- A failure (D+ or lower) in the laboratory practice component will automatically result in the failure of both components of the course.

## Medical Technology Courses

### MT 105 • 3 credits

#### Contemporary Topics in Human Ecology I

Medical-social problems as they relate to modern society. Contemporary topics such as human inheritance and eugenics, factors affecting I.Q., basic human physiology, the disease state, birth control and abortion.

### MT 106 • 3 credits

#### Contemporary Topics in Human Ecology II

Continuation of MT 105.

### MT 111 • 1 credit

#### Medical Technology Seminar

This is a basic orientation to the field of laboratory medicine. The specialty areas of medical laboratory science, manpower problems, upward mobility, professional organizations, accreditation, certification, the team concept and professionalism are discussed. Lecture-discussion-demonstration 1 hour. Required of medical technology freshmen and transfer students.

### MT 113 • 1 credit

#### Introduction to Clinical Laboratory Techniques

An introduction to the fundamental techniques used in the clinical laboratory. Topics shall include qualitative and quantitative testing on body fluids, safety and quality control. Laboratory 4 hours

### MT 226 • 4 credits

#### Pathophysiology

This course involves the selection, generation and translation of basic information for the diagnosis, prognosis and management of clinical samples. Health screen vs. diagnostic and

prognostic profiles will be discussed.

Lecture 3 hours/Laboratory 6 hours

Prerequisite: MT 315 or permission of instructor.

### MT 301 • 4 credits

#### General Microbiology

This course presents the basic concepts of physiology, genetics, morphology, ecology, systematics and control of microorganisms. Laboratories shall supplement lecture presentations, stressing basic instrumentation and laboratory technique. Lecture 3 hours/Laboratory 6 hours.

Prerequisite: CH 251 or permission of instructor.

### MT 302 • 4 credits

#### Medical Bacteriology

This course presents the theoretical basis for an in-depth understanding of organisms of medical importance. Stress shall be placed on bacterial physiology as it relates to disease. Quality control statistical methods and current literature shall be analyzed.

Lecture 3 hours/Laboratory 6 hours.

Prerequisite: MT 301.

### MT 303 • 3 credits

#### Clinical Microbiology

Man as an ecosystem. Host parasite relationships. Microbe's social impact on populations. Preventative medicine and the rationality of various defenses against infectious diseases; vaccines, antibiotic therapy and hospitalization. The study of major clinical entities such as pneumonias, meningitis, diarrheas, mycobacterioses, treponematodes and the emergence of man-produced infections completing the cycle of "life on man."

**MT 305 • 3 credits****Clinical Immunobiology**

Emphasis on the emerging concepts of immunobiology.

Topics will include immunogens, immunoglobulins, and their interaction. Autoimmunity, infection and immunity, immunohematology, and cancer biology and immunity.

Lecture 3 hours.

**MT 311 • 1-3 credits****Medical Technology Seminar I**

Selected topics shall be presented. Attendance at professional seminars, some of which are held in the evenings and/or on weekends are an integral part of this course.

Prerequisite: Junior or senior standing or permission of instructor.

**MT 312 • 1-3 credits****Medical Technology Seminar II**

Selected topics shall be presented by both faculty and students. Topics shall be submitted from affiliated hospitals.

Prerequisite: Junior or senior standing or permission of instructor.

**MT 315 • 4 credits****Human Genetics**

This course presents an intense survey of genetic mechanisms emphasizing the effect on human inheritance and disease.

Lecture 3 hours/Laboratory 4 hours.

**MT 360 • 4 credits****Clinical Chemistry Applied in Diagnostic Techniques**

Medically relevant carbohydrates, proteins, lipids, hormones, nonprotein nitrogenous substances and enzymes will be discussed. Clinical laboratory determinations in various body fluids or normal and abnormal state will be covered.

Lecture 3 hours/Laboratory 6 hours

Prerequisite: CH 251 or permission of instructor.

**MT 495 • 1-4 credits****Directed Study in Medical Technology**

The student selects a topic for in-depth study. Readings and reports are supervised by a member of the faculty. Terms and hours to be arranged.

Prerequisite: Permission of instructor.

**MT 496 • 1-4 credits****Continuation of MT 495.****MT 497 • 2 credits****Research Project**

The student initiates a proposal on a selected research topic. The research is done under the supervision of the appropriate faculty member.

A completed paper is required.

Four hours per credit hour per week.

Prerequisite: Permission of instructor.

**MT 498 • 1-4 credits****Research Project****Continuation of MT 497.**

For the classes of 1981, 1982, and 1983 the following courses are presented at affiliated hospitals for an academic year consisting of 50 40-hour weeks.

Lecture and laboratory hours shall comply with standards set by the National Accrediting Agency for Clinical Laboratory Sciences.

Prerequisite: Senior standing. Medical Technology Majors only. Admission to program by consent of the Department of Medical Technology and acceptance to an affiliated hospital.

Beginning with the class of 1984, the following courses

are presented on campus and at affiliated hospitals for an academic year that exceeds the regular academic year.

This year will consist of 40 hours per week on campus and/or in affiliated hospital(s). Lecture and laboratory hours shall comply with the standards set by the National Accrediting Agency for Clinical Laboratory Sciences. These are open only to Medical Technology students or permission of the Department.

**MT 401 • 4 credits****Clinical Microbiology I**

Emphasis is placed on the principles of practice of diagnostic microbiology such as specimen collection and handling, quality control, and laboratory safety. Clinical correlation, immunology and hospital surveillance will be included.

**MT 402 • 4 credits****Clinical Microbiology II****Continuation of MT 401.****MT 409 • 2 credits****Immunohematology I**

The principles of blood banking, including the preparation and storage of blood and its components, donor evaluation, transfusion, required record keeping, and processing of frozen blood shall be emphasized. Clinical correlation, quality control and laboratory safety will be included.

**MT 410 • 2 credits****Immunohematology II****Continuation of MT 409.****MT 419 • 4 credits****Clinical Biochemistry I**

Topics will include principles of the physical and chemical analysis of medically significant organic and inorganic substances found in human body fluids and

tissues. Laboratory instrumentation and electronics, metabolic screening, specimen collection, clinical correlation, quality control and laboratory safety will be emphasized.

**MT 420 • 4 credits****Clinical Biochemistry II****Continuation of MT 419.****MT 429 • 3 credits****Hematology I**

Subjects include the analysis and clinical correlation of quantitative and qualitative variations in blood. Blood cell and other formed element morphology, the dynamics of coagulation, processing and evaluation of human bone marrow, quality control and laboratory safety shall be studied.

**MT 430 • 3 credits****Hematology II****Continuation of MT 429.****MT 439 • 2 credits****Clinical Microscopy**

Emphasis shall include the applied principles of the clinical evaluation of the physical and chemical constituents and formed elements of kidney filtrate. Quality control, laboratory safety and clinical correlation shall be covered.

**MT 449 • 2 credits****Special Lab I**

The course content will vary according to special areas of investigation in each of the affiliated hospitals. More intensive study and performance of selected topics such as serology, nuclear medicine, cytogenetics, virology and toxicology shall be included.

**MT 450 • 2 credits****Special Lab II****Same as MT 449.**



# Multidisciplinary Studies

The Multidisciplinary Studies Degree affords a student the opportunity to design an individual program around a specific goal (Pre-Medicine, Pre-Law, etc.) or problem (Ethnic Studies, Urban Studies, Environmental Studies, etc.). This program is limited to students in the College of Arts and Sciences. However, this does not limit the student to courses offered only in the College of Arts and Sciences.

The requirements for the Multidisciplinary Studies Degree are as follows:

1. General requirements for the B.A. Degree (or B.S. Degree, as the case may be) must be satisfied.
2. The student must, in lieu of Department Chairperson, obtain a faculty member to act as faculty advisor.
3. To enroll as a candidate for the Multidisciplinary Studies Degree the student should by the end of the sophomore year (and no later than the end of the junior year), file with the Dean of

the College a proposal which has been approved by a faculty advisor and which includes a minimum of 30 credits in advanced and specialized courses (300 level and above), thus creating the student's own "major". The student becomes a candidate for the Multidisciplinary Studies Degree when the proposal is approved by the Dean.

4. Any subsequent changes in the recognized program of studies must be approved by the student's advisor and by the Dean.





# Philosophy

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## Faculty and Fields of Interest

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**Diane Barense** • philosophy of logic, philosophy of science, philosophy of language, philosophy of feminism

**John Fitzgerald** • classical American philosophy (Peirce, James, Dewey), philosophy of human nature, ethics

**Richard Hogan** • ancient philosophy (especially Plato), analytic philosophy, history of philosophy, Nietzsche

**Theodora Kalikow** • history and philosophy of science (especially biology and ethology), philosophy of mind, analytic philosophy, philosophy of feminism

**James Place** • Hegel, Marx, Freud, Merleau-Ponty, Sartre, Husserl, Heidegger; aesthetics, phenomenology, existentialism, structuralism

**Thomas Wassmer (chair-person)** • ethics, bioethics, meta-ethics, metaphysics, political philosophy, philosophy of religion, philosophy of law, medieval philosophy, modern philosophy, business ethics

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## Philosophy Major - Philosophy Minor

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Philosophy as a major field or minor field for undergraduates includes the study of at least three areas:

1. understanding of systematically related questions posed by all human beings – such questions as those of morality, of knowledge, of art, of science, of history, of language, of religion;
2. history of western Philosophic thought and
3. familiarity with the work of present-day philosophers.



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**Requirements for a Major in Philosophy:**

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The major program requires the student to complete the following courses:

Selection of Philosophy as a Major field requires 33 hours credit averaging at least 2.0 from these courses listed below in the department:

I. Departmental courses must include: (9 credits)

- PI 110 Logic (Philosophy 235 Symbolic Logic may be substituted)
- PI 221 Ancient Philosophy
- PI 222 Modern Philosophy

II. Departmental courses must include two courses in Contemporary Philosophy from the following three courses (6 credits)

- PI 361 Contemporary Continental Philosophy
- PI 371 Contemporary British Philosophy
- PI 382 Contemporary American Philosophy

III. Departmental courses must include one seminar course (3 credits) from

- PI 410-419 Seminar
- PI 350 (Plato) may also be taken as a seminar.

IV. Departmental courses must include at least 3 courses in systematic philosophy from the following list (300 to 349) (9 credits):

- PI 301 Theory of Knowledge
- PI 303 Metaphysics
- PI 311 Philosophy of Language
- PI 315 Meta-Ethics
- PI 316 Political Philosophy
- PI 318 Bioethics
- PI 320 Philosophy of Science
- PI 322 History of Science II
- PI 323 Philosophy of Art
- PI 324 Philosophy of History
- PI 325 Philosophy of Religion
- PI 326 Philosophy of Law
- PI 332 Philosophy of Human Nature
- PI 341 Structuralism

V. The remaining 6 credits may be satisfied by the selection of two courses from the following list:

- PI 101 Problems of Philosophy
  - PI 102 Philosophical Aspects of Feminism
  - PI 207 Introduction to Aesthetics
  - PI 210 Socrates
  - PI 215 Ethics I
  - PI 223 Medieval Philosophy
  - PI 224 Nineteenth Century Philosophy
  - PI 226 Marx
  - PI 227 Nietzsche
  - PI 230 History of Science I
  - PI 232 Inductive Inference
  - PI 235 Symbolic Logic (if not taken under paragraph I)
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### Requirements for a Minor in Philosophy

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Selection of Philosophy as a Minor requires a grade-point-average in one's Major to be at least 2.5.

Selection of Philosophy as a Minor also requires 18 credit-hours credit averaging at least 2.0 from these courses listed below in the department:

I. One course in the History of Philosophy (3 credits) from the following list:

- PI 221 Ancient Philosophy
- PI 222 Modern Philosophy
- PI 223 Medieval Philosophy

II. Four courses from the following list with the understanding that two of the courses must be in the upper division (300 to 391). (12 credits)

- PI 101 Problems
- PI 102 Philosophical Aspects of Feminism
- PI 110 Logic
- PI 207 Introduction to Aesthetics
- PI 210 Socrates
- PI 215 Ethics I
- PI 221 Ancient Philosophy (if not taken under I)
- PI 222 Modern Philosophy (if not taken under I)
- PI 223 Medieval Philosophy (if not taken under I)
- PI 224 Nineteenth Century Philosophy
- PI 226 Marx
- PI 227 Nietzsche
- PI 230 History of Science I
- PI 232 Inductive Inference
- PI 235 Symbolic Logic
- PI 301 Theory of Knowledge
- PI 303 Metaphysics
- PI 311 Philosophy of Language
- PI 315 Meta-Ethics
- PI 316 Political Philosophy
- PI 318 Bioethics
- PI 320 Philosophy of Science
- PI 322 History of Science II
- PI 323 Philosophy of Art
- PI 324 Philosophy of History
- PI 325 Philosophy of Religion
- PI 326 Philosophy of Law
- PI 332 Philosophy of Human Nature
- PI 341 Structuralism
- PI 350 Plato
- PI 361 Contemporary Continental Philosophy
- PI 371 Contemporary British Philosophy
- PI 382 Contemporary American Philosophy

III. One Seminar from PI 410-419 (3 credits)

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## Philosophy Courses

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### PI 101 • 3 credits

#### **Problems of Philosophy**

This is an Introduction to philosophy as the persistent and methodical attempt to think clearly about universal problems of human life, such as ways of knowing and studies in value.

Every semester.

### PI 102 • 3 credits

#### **Philosophical Aspects of Feminism**

An Introduction to philosophical reasoning, analysis of arguments and developing of critical skills, through a consideration of various topics relevant to feminism. Topics may include: presuppositions about woman's nature, abortion, sex equality, affirmative action.

Every year.

### PI 110 • 3 credits

#### **Logic**

An introduction to the methods and principles used to distinguish correct from incorrect reasoning. The course aims at imparting skill in identifying fallacies in reasoning and in using elementary formal techniques to analyze natural language arguments. In addition, such topics as the nature of meaning, the various uses of language, and the logic of science are discussed.

Every semester.

### PI 207 • 3 credits

#### **Introduction to Aesthetics**

This course is offered as an introduction to philosophy. Paintings, photographs, poems, novels, and music will be examined in order to discover the styles of individual commitment through which people have tried to bring meaning into

their lives. While attempting to grasp the aesthetic significance of each work of art, we will continually push toward an understanding of the philosophical dimension of human life as expressed in each work.

Every semester.

### PI 210 • 3 credits

#### **Socrates**

This course will be concerned with two sorts of problems. The first (the so-called 'Socratic Problem') is the problem of evaluating the evidence which we possess about Socrates. This will proceed by reading an analysis of Aristophanes' *Clouds*, Xenophon's *Memorabilia* and *Apology*, some passages from Aristotle and the following 'early' dialogues of Plato: *Apology*, *Crito*, *Euthyphro*, the *Charmides*, *Laches* and *Protagoras*. The second problem to be dealt with is the extraction and evaluation of the main tenets of Socrates' philosophy, such as the claims that virtue is knowledge and that no one ever does wrong willingly.

Every year.

### PI 215 • 3 credits

#### **Ethics I**

A critical examination of normative theories of obligation and value. A philosophical examination of some moral problems — abortion, euthanasia, death penalty, sexual equality, reverse discrimination, pornography and censorship, violence, and economic injustice.

Every semester.

### PI 221 • 3 credits

#### **History of Western Philosophy: Ancient**

A study of philosophy from its origin with the pre-Socratics to the middle ages. The major portion of the course will be devoted to the philosophies of Plato and Aristotle.

Every semester.

### PI 222 • 3 credits

#### **History of Western Philosophy: Modern**

A study of the major philosophical movements (rationalism, empiricism and critical philosophy) in the 17th and 18th centuries. Philosophers studied include Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume, Kant. In addition to these major philosophers, consideration will also be given to the work of Rousseau, Pascal, Malebranche, the French Enlightenment.

Every semester.

### PI 223 • 3 credits

#### **History of Western Philosophy: Medieval**

A study of the philosophical views developed from the 4th to the 14th centuries. The following Christian, Jewish and Islamic philosophers are studied: Augustine, Boethius, Scotus Erigena, Anselm, Abelard, John of Salisbury, Alfarabi, Avicenna, Averroes, Maimonides, Bonaventure, Bacon, Aquinas, Scotus, William of Ockham, Nicholas of Autrecourt, Marsilius of Padua.

Every other year.

### PI 224 • 3 credits

#### **Nineteenth Century Philosophic Thought**

Writings selected from a century of great philosophical vitality and versatility. The

culminating achievement of the western philosophical tradition and the first powerful stirrings of major contemporary trends are fed by such currents as evolutionism, empiricism, idealism, positivism, existentialism, and dialectical materialism. Philosophers studied include Hegel, Fichte, Bradley, Schopenhauer, Comte, Mill, Spencer, Marx, Kierkegaard, and Nietzsche.

Every other year.

### PI 226 • 3 credits

#### **Marx**

Designed as an introduction to the work of Karl Marx for those students who do not necessarily have philosophical backgrounds. The thought of Marx will be presented in two parts. At first, the more philosophical thought of the young Marx will be examined in its relation to Hegel and his followers up to Marx's "setting of accounts" with German philosophy. The second part will deal with the more scientific phase of Marx's thought expressed in *Capital V.I.* Marx's own works will form the reading in the course.

Every other year.

### PI 227 • 3 credits

#### **Nietzsche**

Focus on a critical analysis of the major philosophical themes in Nietzsche's thought. Emphasis is placed on Nietzsche's theory of truth, epistemology, and metaphysics. Nietzsche's roots in the classical tradition are also examined. Readings include most of Nietzsche's major works as well as secondary criticism.

Every other year.

**PI 230 • 3 credits**

**History of Science I**

The development of science from prehistoric times through the time of Newton. Theories of the solar system will be included. No previous knowledge of astronomy required, but simple observations of celestial phenomena requested. Every year.

**PI 232 • 3 credits**

**Inductive Inference**

In science, in legal argument, and in everyday life, we frequently make cogent inferences from evidence which provides less than conclusive support for our conclusions. This course critically examines theories about the structure and justification of such "inductive" reasoning. Included will be a study of theories of probability and of the nature of causation.

Every other year

Prerequisites: PI 110, PI 235 or consent of instructor.

**PI 235 • 3 credits**

**Symbolic Logic**

A study of the formal techniques of sentential and predicate logic. The course aims at imparting skill in applying logic to natural language arguments and in recognizing and constructing correct deductions and refutations. Philosophical issues pertaining to the application of logic to natural language as well as elementary results of meta-logic are discussed.

As needed.

Prerequisite: PI 110 or consent of instructor.

**PI 301 • 3 credits**

**Theory of Knowledge**

This course presents historically important analyses of knowledge as a basis for forming a justifiable view of its scope and structure, and an understanding of its relation to other human activities.

Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 303 • 3 credits**

**Metaphysics**

A study of some representative philosophical views on the general structure and ultimate explanation of reality. Some topics considered will be causality, chance and necessity, the problem of first cause. Consideration will also be given to some objections to metaphysics as a philosophical undertaking.

Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 311 • 3 credits**

**Philosophy of Language**

An examination of how language relates to the world and to thought. Topics will include the nature of meaning, truth, metaphor, and linguistic competence; speech act theory; and the relation of logic to syntax and semantics. Readings will be from contemporary linguistics as well as from philosophy.

Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 315 • 3 credits**

**Meta-Ethics**

Concentrates on the meaning of ethical terms, the objectivity of moral judgments and the justification of these moral judgments. The Is-Ought Question is studied at some length, as well as the possibility of an ontology of morals proposed by contemporary metaphysicians.

Every other year.

Prerequisite: PI 215.

**PI 316 • 3 credits**

**Political Philosophy**

A study of some of the major themes and problems traditionally considered by political philosophers. A consideration of what constitutes a political problem and a discussion of the role of philosophy with regard to such problems. The course thus combines an analytical and an historical approach in the effort to relate traditional political thought to contemporary problems.

Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 318 • 3 credits**

**Bioethics**

A study of the ethical issues related to death and dying, behavior control, genetic counseling and genetic engineering, and population limitation. It will study the work of specific research projects and institutes on those issues.

Every other year

Prerequisite: PI 215 or its equivalent or consent of instructor.

**PI 320 • 3 credits**

**Philosophy of Science**

This course is a critical analysis of science and its methods, a study of the justification and the range of scientific knowledge.

Prerequisite: Semester course in Philosophy or consent of instructor, or third year major in Mathematics or the sciences.

**PI 322 • 3 credits**

**History of Science II**

Selected topics in the history of such fields as physics, biology, chemistry or social science.

Every third year.

Prerequisite: PI 230

**PI 323 • 3 credits**

**Philosophy of Art**

Continues on a more advanced level the development of a theory of art already begun in the introduction to Aesthetics. Themes to be discussed include the nature of form and expression in art, the nondiscussive character of art, the similarities and differences between the artist's relation to the work of art and the spectators', the relation between art and subjectivity, the difference between the linguistic and visual arts, the social function of art, and many more. The works of a few major philosophers will be compared to give students alternative points of view.

Every other year.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.



**PI 324 • 3 credits****Philosophy of History**

This course will consider various theories that have been proposed for interpreting history, as well as recurrent problems about the structure of historical explanation, the possibility of objectivity in history, and the relationship between history and the social sciences.

Every other year.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.

**PI 325 • 3 credits****Philosophy of Religion**

Analytical and constructive study of central concepts and essential manifestations of religion. Both historical and contemporary readings are required.

Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 326 • 3 credits****Philosophy of Law**

Specific problems about freedom, justice, responsibility and punishment will be considered, as well as problems of legal reasoning, analytical problems of definition and issues of the interrelation of law and morality. Intellectually and practically important especially for students who are considering law school or politics.

Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 332 • 3 credits****Philosophy of Human Nature**

The subject of this inquiry is circumscribed by the two related questions, "What is human nature?" and "What is our place in the nature of things?" A few major philosophers will be selected and studied in detail with respect to the answers to these questions.

Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 341 • 3 credits****Structuralism**

This course will deal with recent European philosophical thought and will center primarily on a few of its French representatives of the 1950's and 1960's.

Special emphasis will be given to the problem of the philosophical grounding of structuralist thought and to the possibility of reconciling it with the phenomenological-existential philosophies of consciousness. The course will begin by developing the thought of Maurice Merleau-Ponty and the influence of structuralist linguistics on him. Later, it will examine structuralist approaches in various human sciences.

Major figures studied will include: Merleau-Ponty, Ferdinand de Saussure, Levi-Strauss, Foucault, Barthes, and Althusser.

As needed.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.

**PI 350 • 3 credits****Plato**

The course will be concerned with an examination of the major themes in Plato's philosophy. Readings will be taken from dialogues of all three "periods" but emphasis will be placed upon the "middle dialogues".

Every other year.

Prerequisite: PI 221 or consent of instructor.

**PI 361 • 3 credits****Contemporary Continental Philosophy**

A study of the various currents of continental European thought in this century with special concentration upon the forerunners and representatives of phenomenology and existentialism. Kierkegaard, Nietzsche, Husserl, Jaspers, Heidegger, Merleau-Ponty and Sartre, among others, will be read.

Every other year.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.

**PI 371 • 3 credits****Contemporary British Philosophy**

This course concentrates on the dominant British theme of philosophy as analysis of statements about ourselves and the world. It will include Moore, Russell, Ryle, Wisdom, Austin, Strawson, and Wittgenstein.

Every third year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 382 • 3 credits****Contemporary American Philosophy**

The major positions since the late 19th century (pragmatism, idealism, naturalism and process philosophy) will be studied through selected texts from Peirce, James, Royce, Dewey, Santayana and Whitehead.

Every third year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 410-419 • 3 credits****Seminar**

These courses provide an opportunity for intensive study of (1) major philosophers, such as Plato, Aristotle, Kant, Santayana, Whitehead, Wittgenstein, or (2) of philosophers related by a common theme in development, such as Aquinas, Scotus, Ockham, or Locke, Berkeley, Hume, or Descartes, Spinoza, Leibniz, or (3) of current philosophical work.

Prerequisite: Major or Minor in Philosophy and/or consent of instructor.

**PI 420 • 3 credits****Directed Honors Thesis**

This course provides departmental guidance for a thesis developing out of the primary and continuing interest of the student.

Prerequisite: Major in Philosophy and 3.0 average in philosophy courses.

**PI 495 • 3 credits****Independent Study**

Prerequisite: Philosophy major.



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## Faculty and Fields of Interest

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**Zvi Bar-Yam** • elementary particles

**Robert Bento** • science and society, solar energy

**James de Pagter** • elementary particles

**John Dowd** • elementary particles

**Kazi Haq** • solid state and thin film physics

**Alan Hirshfeld** • astrophysics

**Jong-Ping Hsu** • symmetry principles and gauge field theories

**Wolfhard Kern (chairperson)** • elementary particles

**George Leung** • theoretical particle physics and astrophysics

**Donald Presel** • physics education

**John Russell** • elementary particles

**Joseph P. Sauro** • development of instructional resources

**Paul Ukleja** • liquid crystals and biological physics

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## Physics Major

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A physics major at SMU is a candidate for the Bachelor of Science Degree. The requirements during the first two years include the basic courses in mathematics and physics. Throughout this period students should consult frequently with their departmental advisors and familiarize themselves with department activities such as the meetings and special lectures of the Physics Club. At the beginning of the junior year the students aided by their advisors should plan a course of study for the completion of the college

program. The advanced courses selected during the third and fourth years should be consistent with the students' interests and goals. These interests may be in physics or in allied fields such as astronomy, environmental science, biophysics, meteorology and oceanography. Career plans of the physics major may include graduate study in physics, materials science, biophysics, geophysics, medical physics, or in various branches of applied science or engineering. Other physics majors may wish to establish

careers in industrial or government laboratories, or in teaching in secondary schools. A major in physics is often selected by students wishing to enter the professions of law, business or medicine with the competitive edge that a good physics background can provide.

Students may arrange for supervised independent study as well as for work on individual research projects, and there are frequent opportunities for student participation in faculty research.

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## Requirements

Of the 120 credits needed for a Bachelor of Science degree in Physics, the department requires 39 credits in Physics, 18 credits in specified courses in mathematics and computer science and 8 credits in chemistry.

First Year (Recommended Sequence)				Semester Credits:	First	Second
PH	109	110	Freshman Seminar		1	1
PH	111		Physics I: Mechanics		3	
PH	112		Physics II: Waves and Optics			3
PH	121	122	Physics I, II Lab		1	1
MA	111	112	Analytic Geometry and Calculus I, II		4	4
ENG	101	102	Freshman English		3	3
			Humanities, Social Sciences or Literature		3	3
					15	15

Second Year (Recommended Sequence)				Semester Credits:	First	Second
PH	211		Physics III: Electricity and Magnetism		3	
PH	212		Physics IV: Modern Physics			3
PH	221		Laboratory III: Electricity and Magnetism		1	
PH	222		Laboratory IV: Modern Physics			1
MA	211		Analytic Geometry and Calculus III		4	
MA	212		Differential Equations I			3
CS	261		Principles of Computer Programming			3
CH	151*	152*	Principles of Modern Chemistry I, II		3	3
CH	161*	162*	Introduction to Applied Chemistry I, II		1	1
			Humanities, Social Sciences, or Literature		3	3
					15	17

\*Certain specified courses in Biology and Engineering may be substituted for Chemistry with the prior approval of the student's advisor and chairperson to accommodate specific career goals.

Each student is required to consult with his advisor before registering for courses in the third and fourth year of the physics major.

Third Year (Recommended Sequence)				Semester Credits:	First	Second
PH	341	342	Modern Physics and Quantum Mechanics I, II		3	3
			Humanities, Social Sciences or Literature		3	3
			Physics Electives (minimum required)		3	3
			Additional Physics Electives or Free Electives		6	6
					15	15

Upper Division Laboratory Requirement: A minimum of 6 credits must be selected from the laboratory courses PH 321, 322, 421, 422.

Fourth Year (Recommended Sequence)	Semester Credits:	First	Second
Humanities, Social Sciences or Literature		3	3
Physics Electives (minimum required)		6	3
Additional Physics Electives or Free Electives		6	7
		<b>15</b>	<b>13</b>

Physics Electives: A minimum of 39 credits in Physics are required for graduation.

PH 251	252	Elementary Astrophysics I, II
PH 300	301	Undergraduate Seminar
PH 313*	314*	Mechanics and Wave Motion I, II
PH 321*	322*	Electronic Devices and Circuits
PH 343*	344*	Mathematical Physics I, II
PH 351	352	Physics of the Environment
PH 353		Radiation Protection
PH 361		Introduction to Geophysics
PH 411*	412*	Electric and Magnetic Fields I, II
PH 421*	422*	Advanced Physics Laboratory I, II
PH 441*		Statistical Thermodynamics
PH 470		Independent Study
PH 480		Undergraduate Research
PH 490		Senior Thesis
PH 531	532	Quantum Mechanics I, II
PH 541*	542	Solid State Physics I, II

\*Students who intend to continue their studies in physics at the graduate level should consult with their advisor. A typical course selection for students planning on attending graduate school is indicated above by a star after the course number.

Graduate Program	Physics Courses
The department offers a program of studies leading to the M.S. degree in Physics; for details of the graduate program, consult the Bulletin of the Graduate School.	<b>PH 101 • 3 credits</b> <b>Introduction to Physics I</b> An introductory course in physics covering mechanics, heat and thermodynamics. Emphasis is on fundamentals and their application to practical problems. Non-calculus presentation. MA 101 is recommended as a prerequisite or corequisite.
	<b>PH 102 • 3 credits</b> <b>Introduction to Physics II</b> Continuation of PH 101. The topics covered include vibrations, sound, optics, electricity and magnetism. Non-calculus presentation. MA 102 recommended as prerequisite or corequisite.
	<b>PH 103 • 1 credit</b> <b>General Physics Laboratory I</b> A laboratory course that accompanies PH 101 and PH 107. An introduction to experimental techniques. Experiments in mechanics. Two hours weekly.
	<b>PH 104 • 1 credit</b> <b>General Physics Laboratory II</b> A laboratory course that accompanies PH 102 and PH 108. Experiments in optics, electricity and modern physics using electrical measurement techniques. Two hours weekly.



**PH 107 • 3 credits**

**Basic Physics I**

An introductory course in physics covering mechanics, wave motion, and heat. Emphasis is on principles, applications and the development of problem solving ability. Elementary calculus is used and a course in calculus is a corequisite.

**PH 108 • 3 credits**

**Basic Physics II**

Continuation of PH 107. The study of electricity and magnetism, optics, and atomic and nuclear physics. Prerequisite: PH 107.

**PH 109/110 • 1 credit**

**Freshman Seminar**

Seminar series on topics of current interest to physicists. One hour per week.

**PH 111 • 3 credits**

**Physics I: Mechanics**

Elementary mechanics including the principles of conservation of energy and momentum. Part of a four-semester calculus-based sequence in the elements of physics. PH 121 to be taken concurrently. Four classroom hours weekly.

**PH 112 • 3 credits**

**Physics II: Waves and Optics**

Continuation of PH 111. Wave motion, heat and optics. PH 122 to be taken concurrently. Part of a four-semester calculus-based sequence in the elements of physics. Four classroom hours weekly.

**PH 121 • 1 credit**

**Laboratory I: Mechanics**

A laboratory course that accompanies PH 111. A set of experiments illustrating the principles of mechanics for point particles. Newton's second law, the conservation of energy and momentum. 3 hours biweekly.

**PH 122 • 1 credit**

**Laboratory II: Waves and Optics**

A laboratory course that accompanies PH 112. Experiments on oscillatory motion, sound and optics. 3 hours biweekly.

**PH 161 • 3 credits**

**Science, Technology, and Society I**

Interaction of science and technology with the individual and contemporary society. Non-mathematical presentation and in-depth study, during each term, of a major development in science, considered in its historical and social context. Currently the topic is the nucleus — the development of the concept, its applications in meeting present and future energy needs as well as its abuse in weapons. Prerequisite: None.

**PH 162 • 3 credits**

**Science, Technology and Society II**

The topic, "Evolution of Man and the Universe," is presented in a style similar to that of PH 161, dealing with the scientific and societal aspects of man's search for the origins of his environment. Ancient and modern astronomy and cosmological theories are discussed together with modern biological discoveries and their societal implications. Topics of guest lectures include genetic manipulation and the historical impact of scientific ideas. The course is not dependent upon and can be taken before PH 161. Prerequisite: None.

**PH 163 • 3 credits**

**Energy and Energy Alternatives**

A non-mathematical yet quantitative survey of contemporary energy questions. Energy sources such as coal, oil, natural gas and solar energy including wind power are examined. Energy conservation techniques are examined in detail. Prerequisite: PH 161 or equivalent.

**PH 171 • 3 credits**

**Planet Earth and Its Resources I**

Origin and history of earth; composition and structure of its interior, crust, oceans, and atmosphere. Plate tectonics and sea floor spreading; seismology, vulcanism and earthquakes; magnetism of earth. Forces shaping earth's surface, faults and folds, erosion, sedimentation and weathering. Earth materials: soil, minerals and ores, igneous, sedimentary, and metamorphic materials. Earth resources: salts and fertilizers, chemical supplies, and building materials. Prerequisite: None.

**PH 172 • 3 credits**

**Planet Earth and Its Resources II**

Earth resources: rare and abundant metals and their uses, history of life on earth, the fossil record. Energy and fossil fuels. Nuclear energy sources, Uranium, Plutonium, and Deuterium. Water and its distribution, rate of use, and pollution. Atmospheric-oceanic circulation and heat balance. Weather and climate. Man as agent of change on Planet Earth. Outlook on Future. Prerequisite: None

**PH 180 • 3 credits**

**Scientific and Social Aspects of Solar Energy**

Examines the various options pertaining to the future development of solar energy in the U.S. Individual sources both direct and indirect (biomass, wind, etc.) are examined as to current state of the art and future potential. Different development schemes such as centralized or distributed modes are considered. The goal of the inquiry will be to determine the optimum paths for future development.

**PH 211 • 3 credits**

**Physics III: Electricity and Magnetism**

Electric fields, electric potential, capacitance, conduction, magnetic fields, inductance, electric and magnetic properties of matter, Maxwell's equations in integral form. Part of a four-semester calculus-based sequence in the elements of physics. PH 221 to be taken concurrently. Four classroom hours weekly.

**PH 212 • 3 credits**

**Physics IV: Modern Physics**

Introduction to modern physics: relativity, atomic, and nuclear physics. Part of a four-semester calculus-based sequence in the elements of physics. PH 222 to be taken concurrently. Four classroom hours weekly. Prerequisite: PH 211

**PH 221 • 1 credit**

**Laboratory III: Electricity and Magnetism**

A laboratory course that accompanies PH 211. Introduction to electronic instrumentation experiments on aspects of the laws of electricity and magnetism,

electron beams, capacitance, inductance, magnetic materials.

Three hours biweekly.

**PH 222 • 1 credit**

**Laboratory IV: Modern Physics**

A laboratory course that accompanies PH 212. Experiments in modern physics including radioactive decay, photoelectric effect, atomic excitation, and atomic spectra.

Three hours biweekly.

**PH 251 • 3 credits**

**Elementary Astrophysics I**

This course explores basic concepts and modern developments in astrophysics at an elementary level. It can be used to fulfill the science requirement. Subjects to be discussed range from the solar system and the structure and evolution of the stars to galaxies and the expanding universe. Telescopic observations will be arranged.

Prerequisite: One year of science or mathematics or permission of instructor.

**PH 252 • 3 credits**

**Elementary Astrophysics II**

A continuation of PH 251, this course consists of a more detailed analysis of subjects introduced the preceding semester. Among the topics to be considered are Einstein's theory of relativity, spacetime, cosmology and high-energy astrophysics, including pulsars, quasars and black holes. Occasional laboratory sessions supplement the lectures with fundamental experiments related to astrophysics.

Prerequisite: PH 251 or permission of instructor.

**PH 261 • 3 credits**

**Physics of Music**

Descriptive acoustics course on the application of physical principles in explaining and describing many diverse phenomena. No mathematics beyond simple algebra will be used. Topics include properties of simple vibrators; waves on strings and in other structures; anatomy and functions of the ear; scales, temperaments, and harmony; acoustical environments; production and perception of musical tones in singing voice, lip reed, mechanical reed, air reed instruments, piper organ, bowed string instruments, percussive string instruments, percussive instruments; electronic music and computer music systems. Prerequisites: none

**PH 300/301 • 3 credits**

**Undergraduate Seminar**

A seminar, conducted at the sophomore-junior level, devoted to the discussion of topics in Modern Physics, Astrophysics and related topics.

**PH 313 • 3 credits**

**Mechanics and Wave Motion I**

Mechanics of particle systems including central force motion and two body scattering; accelerating coordinate systems; rigid body kinematics and dynamics; coupled oscillators, small vibrations and normal modes; introduction to Lagrangian methods. Prerequisites: PH 112, MA 212.

**PH 314 • 3 credits**

**Mechanics and Wave Motion II**

Wave phenomena in mechanics, optics and acoustics. A study of the wave equation and its applications with emphasis on the general properties of waves. Interference, diffraction, reflection, refraction and polarization. Prerequisite: PH 112, MA 212.

**PH 321 • 3 credits**

**Electronic Devices and Circuits I**

A lecture and laboratory course in electronic circuit theory covering both active and passive devices and elementary networks. Two hours lecture, three hours laboratory. Prerequisite: PH 211, MA 212.

**PH 322 • 3 credits**

**Electronic Devices and Circuits II**

A continuation of PH 321 with emphasis on applications using the elements, devices and techniques of modern research. Amplifiers, coincidence and scaling circuits, detectors, analog devices, digital and integrated circuits.

Two hours lecture, three hours laboratory.

Prerequisite: PH 321.

**PH 341 • 3 credits**

**Modern Physics and Quantum Mechanics I**

Experimental evidence leading to the development of modern physics. Bohr-Sommerfeld theory of the hydrogen atom. Special relativity. Introduction to the Schrodinger equation with solutions to simple problems leading to the study of one-electron atoms. Electron spin, magnetic moment, and fine structure in hydrogen spectra. Prerequisite: PH 212

**PH 342 • 3 credits**

**Modern Physics and Quantum Mechanics II**

Continuation of PH 341. Further development of the principles of quantum mechanics with applications to many-particle systems. Quantum statistics, atomic spectra of many-electron atoms, nuclear structure, nuclear models and scattering. Prerequisite: PH 341.

**PH 343 • 3 credits**

**Mathematical Physics I**

Development of mathematical tools useful in physics. Vector calculus, linear algebra, infinite series, complex numbers, Fourier series. Prerequisite: PH 211, MA 212.

**PH 344 • 3 credits**

**Mathematical Physics II**

Continuation of PH 343. Complex variables, partial differential equations, boundary value problems, special functions, numerical methods. Prerequisite: PH 343.

**PH 351 • 3 credits**

**Physics of the Environment I**

A lecture-seminar course applying physical concepts to environmental problems. Principles of energy conservation; transformations between different forms of energy; energy cycles in biosphere and geosphere. Solar radiation and earth's radiation balance, absorption, emission, and reflection. Study of populations and their distributions, exponential growth, reproduction rate and demographic trends. Utilization of scarce resources: metal ores,



minerals, gas, oil and coal. Nuclear, geothermal and hydroelectric power. Prerequisite: A one year course in physics or permission of instructor.

**PH 352 • 3 credits**  
**Physics of the Environment II**  
Continuation of PH 351. Future energy resources: solar energy, nuclear fission and breeder reactors, fusion power. Environmental effects of power generation: thermal, atmospheric, and radioactive pollution and their biological and health aspects. Circulation systems in atmosphere and ocean. Air pollution, smog and particulates, oxides of sulfur, carbon and nitrogen. Water pollution by oil and industrial wastes. Noise pollution, sonic booms and the SST. Prerequisite: PH 351 or permission of instructor.

**PH 353 • 3 credits**  
**Radiation Protection**  
Introductory course on the basics of radiation protection for students interested in radiology, health care and technology, nuclear physics or engineering, radiation biology or chemistry, and environmental science. No mathematics beyond simple algebra will be used. Topics include X-rays and radioactivity, basic radiation physics, dosimetry and examples of shielding calculations; also, a survey of radiation sources, detectors and measurement techniques. Radiation effects on living cells, tissues and organisms are studied as well as their long-lasting genetic effects on populations. Practical aspects of working with X-rays and radionuclides are discussed.

Prerequisite: 6 credits in physical or life sciences or engineering or college math.

**PH 361 • 3 credits**  
**Introduction to Geophysics**  
A one semester course for science and engineering students dealing with the applications of geophysics. Topics covered will include the origin of the earth, geochronology, temperature of the earth, seismic wave propagation, theory of gravitational and magnetic potentials and geomagnetism. Prerequisite: A one year course in physics or its equivalent.

**PH 411 • 3 credits**  
**Electric and Magnetic Fields I**  
Study of the fields of static charges and constant currents, the properties of dielectric and magnetic materials, and magnetic induction, leading to the formulation of Maxwell's equations. Prerequisite: PH 211, PH 343.

**PH 412 • 3 credits**  
**Electric and Magnetic Fields II**  
Continuation of PH 411. Development of the wave equation. Electromagnetic waves in space and in matter. Study of radiation from time varying charge and current distributions. Prerequisite: PH 411.

**PH 421 • 3 credits**  
**Advanced Physics Laboratory I**  
A laboratory course designed to acquaint the student with current experimental techniques in physics and methods of data analysis. Four hours laboratory and one hour lecture. Prerequisite: PH 212.

**PH 422 • 3 credits**  
**Advanced Physics Laboratory II**  
A continuation of PH 421. Projects in experimental physics with emphasis on independent work by the student. Four hours laboratory and one hour lecture. Prerequisite: PH 421.

**PH 441 • 3 credits**  
**Statistical Thermodynamics**  
The laws of thermodynamics and their interpretation based on the microscopic behavior of matter. Entropy and probability, equilibrium, reversibility, thermodynamic functions, phase changes, quantum statistics. Applications to problems in solid state physics. Prerequisite: PH 212

**PH 470 • 1-3 credits**  
**Independent Study**  
Individual study of selected topics in physics under the guidance of a faculty advisor. This course is suitable for study of physics subfields of special interest to individual students and faculty members. Prerequisite: Permission of department.

**PH 480 • 3 credits**  
**Undergraduate Research**  
Individual work under the supervision of a faculty member on an experimental, theoretical, or literature review project in physics. This work may lead to a senior thesis project or may be concluded by a written report at the end of the term. Prerequisite: Permission of department

**PH 490 • 3 credits**  
**Senior Thesis**  
Intensive individual work on an experimental or theoretical problem in physics under the guidance of a staff member. The special project is to be selected at the beginning of the senior year. Credit will be assigned in the second semester.

**PH 511 • 3 credits**  
**Advanced Mathematical Physics I**  
Mathematical methods in physics. Linear algebra, complex variable theory, eigenfunction expansions and orthogonal functions, the special functions of mathematical physics.

**PH 512 • 3 credits**  
**Advanced Mathematical Physics II**  
Partial differential equations, integral equations, and Green's functions. Generalized functions. Calculus of variations. Group theory.

**PH 521 • 3 credits**  
**Theoretical Mechanics and Relativity**  
The Lagrangian and Hamiltonian formulation of Newtonian mechanics. Variational principles, transformation theory, Poisson brackets, and Hamilton-Jacobi theory. Special relativity and the covariant formulation of particle mechanics. Introduction to general relativity.



**PH 522 • 3 credits**

**Electromagnetic Theory**

Boundary value problems in electrostatics, Green's functions and eigenfunction expansions. Maxwell's equations, momentum and energy of the electromagnetic field, radiation, multipole expansions, scattering. Special relativity and Lagrangian formulation, radiation from moving charge, radiation reaction.

**PH 531 • 3 credits**

**Quantum Mechanics I**

A course in the fundamentals of quantum mechanics. Schrodinger equation, operator techniques, angular momentum, central force motion, spin, matrix representations, and the theory of measurement.

**PH 532 • 3 credits**

**Quantum Mechanics II**

Radiative processes. The theory of scattering. Variational principles. Symmetry and invariance principles. Second quantization. Introduction to relativistic quantum mechanics and field theory.

**PH 541 • 3 credits**

**Solid State Physics I**

Basic concepts of solid state physics. Crystal structures, lattice vibrations, ionic crystals. Dielectric and optical properties of insulators, ferroelectrics, free electron theory of metals, energy bands, semi conductors.

**PH 542 • 3 credits**

**Solid State Physics II**

Theory of conductivity and related effects. Rectification and transistors. Imperfection in crystals. Plastic deformation color centers, optical properties of solids. Theory of magnetism.

**PH 551 • 3 credits**

**Nuclear Physics**

A discussion of topics in nuclear physics including nuclear forces, nuclear models, nuclear reactions and nuclear decay.

**PH 552 • 3 credits**

**Elementary Particle Physics**

Relativistic kinematics of particle motion, phenomenological and dynamical theories of particle interactions and classification of particles according to symmetry principles.

**PH 561 • 3 credits**

**Physics of the Environment I.**

A lecture-seminar course with significant graduate student participation in seminar preparation. Principles of energy conservation; transformations between different forms of energy; energy cycles in biosphere and geosphere. Solar radiation and earth's radiation balance, absorption, emission, and reflection. Study of populations and their distributions, exponential growth, reproduction rate and demographic trends. Utilization of scarce resources: metal ores, minerals, gas, oil and coal. Nuclear, geothermal and hydroelectric power.

**PH 562 • 3 credits**

**Physics of the Environment II**

Continuation of PH 561. Future energy resources: solar energy, nuclear fission and breeder reactors, fusion power. Environmental effects of power generation: thermal, atmospheric, and radioactive pollution and their biological and health aspects. Circulation systems in air and ocean. Air pollution, smog and particulates, oxides of sulfur, carbon and nitrogen. Water pollution by oil and industrial wastes. Noise pollution, sonic booms and the SST.

**PH 565 • 3 credits**

**Geophysics**

A course for graduate students in the basic principles of geophysics. Propagation of elastic waves and their application to seismology, consideration of the earth's gravity, geomagnetism, thermal properties and radioactivity.

**PH 570 • 3 credits**

**Independent Study**

Individual study under the supervision of a faculty member in an area of physics that is not otherwise part of the graduate course offering. Primarily for graduate students.

**PH 575 • 3 credits**

**Graduate Seminar**

A seminar devoted to the discussion of topics in modern physics and related subjects. Primarily for graduate students.

**PH 580 • 3 credits**

**Graduate Research**

Directed research on a project in experimental, theoretical, or applied physics under the supervision of a faculty sponsor. The research may lead to a graduate thesis project or may be concluded by a written report at the end of one or two terms.

**PH 590 • Not to exceed 6 credits**

**Graduate Thesis**

Thesis research on an experimental or theoretical project in physics under a thesis advisor. Project will usually be selected at the beginning of the second year of graduate study. Submission of a formal thesis required at conclusion.

Faculty and Fields of Interest	Political Science Major	Political Science Minor
<p><b>Shaukat Ali</b> • public administration, comparative politics: South Asia, non-western political thought.</p> <p><b>Naseer Aruri</b> • international relations, foreign policy, comparative politics: Middle East, revolutionary change.</p> <p><b>John Carroll</b> • American institutions, civil liberties, courts, judges and politics, Massachusetts State Legislature.</p> <p><b>Jean Doyle</b> • comparative politics: China, women in politics, Communist systems of less developed societies.</p> <p><b>Richard M. Fontera</b> • comparative politics, politics of social change, politics of South Asia.</p> <p><b>Jack W. Fyock</b> • American politics, state and local, urban politics.</p> <p><b>Phillip H. Melanson (chairperson)</b> • American politics, public policy, empirical theory.</p> <p><b>Rita Montz</b> • political behavior, quantitative methods, women in politics, group dynamics.</p> <p><b>Robert L. Plper</b> • American political parties, political thought, and government.</p> <p><b>T. Noel Stern</b> • Western political thought, classical political thought, constitutional law, civil liberties.</p>	<p>The Political Science Program offers a variety of courses in American Politics, Comparative Politics, International Relations, Political Theory, Public Administration, State-Local Government, area studies (China, Middle East), Electoral Behavior and Quantitative Methods. The program attempts to provide students with analytical skills and with an understanding of political-administrative processes within a wide variety of political arenas and cultures. These skills and understandings are useful in a broad range of career pursuits and personal developmental goals.</p> <p>Political Science graduates are currently enrolled in some of the nation's leading law, graduate and professional schools. Others have successfully pursued careers in a variety of areas for which the program's offerings provide a useful and effective background: teaching; corporate management; service in state, local, or federal government administration; careers in social work, urban planning, diplomatic service; careers in practical politics, such as lobbying, campaign management, polling and data analysis. The program also offers internships and contract-learning opportunities for practical experience. The political science faculty is active in research and government and community service, and publishes many books and articles in their respective fields.</p>	<p>The Minor in Political Science consists of 21 credits. No more than three courses can be taken from 100 and 200 levels to be applied for Minor credit. Minor course credits must be taken with at least three different professors. Students choosing to Minor in Political Science must achieve at least a 2.5 average in all Political Science courses and a 2.0 cumulative grade point average. Students must formally declare the Minor. Appropriate forms will be available from faculty advisors in the Political Science Department. Students must declare the Minor by the end of their fifth semester and must have completed 54 credits. The nine upper-level course hours must be taken after the Minor has been declared. A research seminar is required of all Minor candidates.</p>

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## Requirements

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Political Science Majors are required to take 36 credits. The requirements of the College of Arts and Sciences must also be met. Independent Study and Directed Study are per university policy. No Contract Learning requirements may be applied to fulfillment of the requirements for the major.

### PSC 100 Level:

PSC 101	American Politics
PSC 151	Comparative Politics
PSC 161	World Politics

Two of the above courses are required, six credits total.

PSC 200 - 299: Two courses (six credits) required.  
A maximum of three courses (nine credits) may be credited toward fulfillment of the required credits for the major.

PSC 300 - 399: Out of the 30 hours of political science credits required above the 100 level (i.g. 200-level or higher) no more than 21 hours can be taken in either the American Politics category of courses or in the Global Politics category of courses.

PSC 400 - 499: Research Seminars. One Research seminar is required.

500 Level Honors Program.

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## Political Science Courses

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**PSC 101 • 3 credits**  
**Introduction to American Politics**  
Theory and practice of national policy-making in Congress, the Presidency, and the Supreme Court, and the interaction of these institutions with interest groups, political parties, public opinion and the mass media.

**PSC 151 • 3 credits**  
**Introduction to Comparative Politics**  
Study of political processes, ideologies, constitutional systems and governmental structure of foreign countries including Great Britain, France, Germany, Soviet Union and selected Third World nations. Comparison with American system of government. Stress laid on the use of analytical method. Formerly PS 102.

**PSC 161 • 3 credits**  
**Introduction to World Politics**  
Analysis of the basic concepts and issues of international relations in the contemporary world, with emphasis on the post World War II period. The Cold War in Europe, Asia and Africa is examined in the context of revolutionary transformations. Nationalism, non-alignment and polycentrism are discussed together with their impact on the global struggle.

**PSC 201-243 • 3 credits**  
**American Issues and Ideas**  
Issues and Ideas courses on selected topics to be developed by instructors as student interest and faculty preference indicate. Students who are not Political Science majors are particularly invited to enroll in such courses.

**PSC 251-299 • 3 credits**  
**World Issues and Ideas**  
Issues and Ideas courses on selected topics to be developed by instructors as student interest and faculty preference indicate. Students who are not Political Science majors are particularly invited to enroll in such courses.

**PSC 301 • 3 credits**  
**The Presidency**  
The development of the modern presidency and its position within the American constitutional framework is the concern of the course. Special attention will be paid to the presidential selection system. The organization of the office, interbranch relationships and presidential power. Formerly PS 340. Prerequisite: PSC 101 or permission of the instructor and upper class standing.



**PSC 302 • 3 credits**  
**The American Legislature**  
 Congress and the Massachusetts state legislature are the main subjects of this course. Elections, legislative organization, leadership of the legislative party, policy making, interbranch relations and the dynamics of the legislative process are the sub-themes. Formerly PS 309. Prerequisite: PSC 101 or permission of the instructor and upper class standing.

**PSC 311 • 3 credits**  
**State Politics**  
 An exploration of politics and government in the American states. The course is structured by a comparative analysis of politics in the 50 states but the central concern is Massachusetts politics and government. Special attention is given to the relationship between political patterns and such governmental services as education, welfare, and urban reconstruction. Formerly PS 300. Prerequisite: PSC 101 and upper class standing.

**PSC 312 • 3 credits**  
**Massachusetts Politics**  
 An analysis of selected aspects of Massachusetts politics and government: the state legislature, electoral trends, parties, courts, and executive policy are potential subject. Prerequisite: PSC 101 or consent of instructors and upper class standing.

**PSC 313 • 3 credits**  
**Urban Politics**  
 A critical examination of the urban political community in the United States. Particular attention is given to the adequacy of the city as an arena of conflict resolution and decision-making as well as such current problems as urban reconstruction in the ghettos. Field research in the area by individuals or groups is encouraged but not required. Formerly PS 311. Prerequisite: PSC 101 and upper class standing.

**PSC 321 • 3 credits**  
**Courts, Judges and Politics**  
 The idea of constitutionalism is the organizing concept in this course, which will examine the constitution-making process, problems associated with constitutional interpretation, higher court decision-making, and the impact of higher court decisions. The focus will be on the U.S. Supreme Court primarily. Prerequisite: PSC 101 or permission of instructor and upper class standing.

**PSC 322 • 3 credits**  
**Constitutional Law**  
 Course centers on major constitutional decisions affecting the framework of American government. Supreme Court cases will cover judicial review, due process of law, commerce clause, federal state relations. Also powers of, and limitations on the presidency. Formerly PS 351. Prerequisite: PS 101 and upper class standing.

**PSC 323 • 3 credits**  
**Civil Liberties**  
 This course is in effect the second half of the course on Constitutional Law. The Civil Liberties course deals with the relations between the individual and the state as defined by U.S. Supreme Court decisions. Topics can include: rights of racial-minorities, freedom of speech, church-state relations, obscenity laws, rights of conscientious objectors. Formerly PS 354. Prerequisite: PSC 101 and upper class standing.

**PSC 324 • 3 credits**  
**American Political Thought**  
 Development of American Political ideas from the colonial period to the present day. Examples of writers who may be covered are: John Cotton, Jefferson, authors of Federalist Papers, Calhoun, Thoreau, Sumner, Veblen and Dewey. Selected Supreme Court opinions will be considered. Formerly PS 301. Prerequisite: PSC 101 and upper class standing.

**PSC 331 • 3 credits**  
**Dynamics of Group Politics**  
 This course focuses on the role of organized groups within the American political system. Special attention is paid to the development and function of political parties and political interest groups. Strategies for lobbying and creating new pressure groups also examined. Formerly PS 303. Prerequisite: PSC 101 or written permission of instructor and upper class standing.

**PSC 332 • 3 credits**  
**Sex Roles and Politics**  
 This course examines the impact of gender as a variable in American politics. It analyzes women as citizens, as office holders, and as political participants including participation in political organizations and lobbying strategies. Political issues affecting women are also discussed. Carries credit in women's studies. Prerequisite: none

**PSC 333 • 3 credits**  
**Political Behavior**  
 Examines the political behavior within the American political system. Special emphasis on quantitative methods to examine participation. Original data sets which have provided the sources for assigned readings are supplied. Emphasis on socio-economic models of participation. Prerequisite: PSC 101 and PSC 349, or written permission of instructor and upper class standing.

**PSC 341 • 3 credits**  
**Public Policy in America**  
 An examination of the institutions, processes, and arenas which shape the formation and implementation of public policy at the national level, with special attention to major, contemporary policy problems. Formerly PS 315. Prerequisite: PSC 101 and upper class standing.

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**PSC 342 • 3 credits****Public Administration**

Examination of the general nature of the bureaucracy in public and private organization and in various cultural contexts. Attention is given to administrative responsibility. Formerly PS 321.

Prerequisite: Upper class standing.

**PSC 349 • 3 credits****Quantitative Methods for Political Science**

Introduces the student to basic statistics and their application to data analysis within a Political Science framework. Students also learn computer application by using Statistical Package for the Social Sciences on the University's computer system. Computer work is closely supervised and conducted as a tutorial.

**PSC 351 • 3 credits****Modern Political Thought**

Course will cover European political thinkers and ideologues since the 18th Century, such as Rousseau, Hegel, Marx, J. S. Mill, Herbert Spencer and Freud. Attention will be given to democratic thought, both capitalist and socialist, to communism, fascism and religiously oriented thought. Formerly PS 302.

Prerequisite: PSC 151 and upper class standing.

**PSC 352 • 3 credits****Classical Political Thought**

Covers major thinkers prior to the modern age, centering on the political and ideological aspects of their thought. Examples of writers to be covered are: Greek and Roman thinkers, Machiavelli, Reformation leaders and English social contract theorists. The lecture will stress the tie-in between the thought of classical thinkers and modern political ideologies and trends. Formerly PS 401.

Prerequisite: PSC 151 and upper class standing.

**PSC 353 • 3 credits****Non-Western Political Thought**

A course which comprehends the political philosophy of non-western thinkers whose ideas had a deep impact on the political institutions in lands outside Europe. Emphasis is on Buddhist, Hindu and Muslim thinkers who at different periods of history gave insightful expositions of human nature in politics. Formerly PS 371.

Prerequisite: Upper class standing.

**PSC 361 • 3 credits****Chinese Government and Politics**

The course will introduce the People's Republic of China and will help develop an understanding of the political process there. It will examine the interrelationships between China's revolutionary

heritage and the development of Maoist ideology and mass mobilization politics, economic policy, and foreign policy. Finally, it will examine post-Mao politics to determine the degree and direction of change and its implication for Chinese politics and for the Chinese people.

Prerequisite: PSC 151 and upper class standing.

**PSC 362 • 3 credits**  
**Comparative Communist Systems**

Analysis of similarities and differences among Communist states — Cuba, China, the Soviet Union, and Eastern Europe. Emphasis will be on the internal dynamics of change and the effects of ideological and organizational factors on Communist bloc relations, especially the Sino-Soviet dispute. Formerly PS 318.

Prerequisite: PS 151 or consent of instructor. Upper class standing.

**PSC 363 • 3 credits****Politics and Government of the Middle East**

A study of the politics of the Middle East in terms of the region's history, geography, culture and the impact of the West. Country studies include Turkey, Egypt, Syria, Israel, Jordan, Iraq, Saudi Arabia and other Gulf States. Formerly PS 332.

Prerequisite: Upper class standing.

**PSC 364 • 3 credits**  
**Politics and Government of South Asia**

The course is a study of certain important systems in South Asia and Southeast Asia. The countries included are India, Pakistan, Malaysia, and Philippines. Topics included for discussion are constitutional framework, political process, and salient characteristics of the political culture as a whole. Formerly PS 339.

**PSC 372 • 3 credits**  
**Revolutionary Change**  
Revolution is treated as a special category of social change. The course deals with a comparative analysis of the determinants of revolutionary change in selected areas in Latin America, Africa, the Middle East, and Southeast Asia. Formerly PS 336.  
Prerequisite: Upper class standing.

**PSC 381 • 3 credits**  
**Contemporary International Relations**  
Problems in international relations with emphasis on changing characteristics of contemporary world politics. Attention is given to super-power politics and accommodations (detente) in Europe, East Asia, the Middle East and Africa, and the problems associated with the emergence of a new world order.  
Prerequisite: PSC 161.

**PSC 382 • 3 credits**  
**American Foreign Policy**  
A study of the substance and formulation of American policies in world politics. Attention is given to the changing role of the United States in world politics, and the varying constitutional, administrative and political considerations which have effected changes in American foreign policy since World War II. Formerly PS 343.  
Prerequisite: PSC 161 and upper class standing.

**PSC 383 • 3 credits**  
**The Politics of International Economic Relations**  
The course will examine the political origins and impact of international economic issues on both the industrialized and less developed countries. Among the topics to be considered are the politics of the structural aspects of the international political economy (trade, monetary policy, tariff policy, regionalism), institutional aspects (multinational corporations, international lending institutions, aid-giving), and North-South relations and resource distribution. Specific case studies such as global feed or energy politics will be used where appropriate.  
Prerequisite: PSC 161 or PSC 361 and upper class standing.

**PSC 384 • 3 credits**  
**International Law and Organization**  
The course provides insight into all the major dynamics of international law, state succession, recognition, treaties, diplomacy, settlement of international disputes, and international organization (such as the League of Nations and the United Nations.)  
Prerequisite: One or two 100-level courses.

**PSC 391 • 3 credits**  
**Comparative Public Administration**  
Comparative study and analysis of the public service system in selected countries in the U. S., Europe, and Asia. Topics include recruitment, selection, promotion, policy making role and social background of the higher civil servants. Formerly PS 327.  
Prerequisite: Permission of instructor or upper class standing.

**PSC 400-444 • Seminars in American Politics and Ideas**  
Formerly PS 380-398, PS 391-392, PS 492.

**PSC 445-455 • Directed Study, Independent Study, Contract Learning.** Formerly PS 399-400.

**PSC 456-498 • Seminars in World Politics and Ideas.** Formerly PS 380-398, PS 391-392, PS 492.

**PSC 499 • Honors Seminars**

**PSC 900 • Contract Learning**



# Pre-Medical Program

## Pre-Medical Advisory Committee

A Faculty Pre-Medical Advisory Committee assists all pre-medical (pre-medical, pre-dental, pre-veterinary, pre-paramedical) students in their pursuit of admission to a professional school.

1. The committee meets once each semester with each student who declares himself or herself a pre-med. The committee reviews the student's program and progress and makes recommendations.

2. The committee serves as the principal source of advice in course selection for the pre-medical program.

3. The committee actively seeks up-to-date information about medical school admission requirements and makes direct contact with the medical schools whenever possible.

4. The committee prepares letters of recommendation going to the medical schools.

5. The committee serves in association with the Student Pre-medical Association. In

addition to its other functions, the student association serves as a principal determiner of who the pre-meds are and puts the students in contact with the faculty committee.

Any student who deems himself or herself a pre-med should either contact the Student Pre-medical Association or a member of the Faculty Pre-Medical Advisory Committee.



# Psychology

## Faculty and Fields of Interest

**Lynn Tondat Carter** • physiological psychology and recovery following neural damage.

**John Caruso** • human learning and applications to instruction

**Victor Callri** • humanistic and counseling psychology

**Julie Cleare** • clinical and developmental psychology

**Donald Corriveau** • clinical research and behavioral medicine

**Paul Donnelly** • counseling psychology, treatment of adolescent and criminal offenders

**Morton Eifenbein (chairperson)** • social psychology and group behavior

**Barry Haimson** • psychophysiology and perception

**William Holt** • child psychology and learning theory

**Robert Pallatroni** • clinical psychology and behavior disorders

**James Riley** • behavior modification and community psychology

**Judith Sims-Knight** • cognitive and developmental psychology

**Donald E. Walker** • organizational psychology and counseling

## Psychology Major

Students who major in psychology find primary employment opportunities in personnel management, secondary and elementary school education, social work, and as aides in mental health establishments. Higher level psychological activities, such as counseling psychotherapy, university instruction, psychological research

and various administrative mental health positions generally require a master's degree or preferably a doctorate in psychology. All psychology majors are required to complete successfully General Psychology (PY 101), Statistics (PY 205) and Experimental Methods (PY 210). In addition twenty-one credits must be taken among

the four areas listed in the requirements section. Students should plan to complete General, Statistics, Methods and their choice from Area A (Child, Adolescent, or Educational psychology) by the end of their sophomore year. This system is designed for the student who wishes to obtain a broad liberal education in the field.

## Requirements

Psychology majors (class of 1981 and subsequent classes) must fulfill the following requirements:

### Required Courses

		Credits:
PY 101	General Psychology	3
PY 205	Statistics for Psychology	4
PY 210	Experimental Methods	4

### Area Requirements

A. Choose one (1) of the following courses:

PY 201	Child Psychology	3
PY 215	Adolescent Psychology	3
PY 220	Educational Psychology	3

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**B. Choose two (2) of the following courses:**

**Total of 6 credits.**

PY 202            Abnormal Psychology  
PY 204            Social Psychology  
PY 302            Psychological Testing

**C. Choose two (2) of the following courses:**

**Total of 6 credits.**

PY 305            Physiological Psychology  
PY 303            Psychology of Learning  
PY 320            Psychology of Perception

**D. Choose at least two (2) upper-level (300 or 400-level) courses —**

**Total of 6 credits.**

**Minimum total credits for major:**

**32 credits.**

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#### **Psychology Courses**

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**PY 101 • 3 credits**

**General Psychology**

Introduction to the systematic study of behavior to serve as a self-contained survey and as a foundation for advanced work in psychology and related fields. Topics will include development, learning, perception, biological bases, intelligence, and personality.

**PY 201 • 3 credits**

**Child Psychology**

A study of the child from both the developmental and experimental approaches. Topics which may be included are: methodology in child research, heredity and environment controversy, intelligence, language and communication, learning in infancy and childhood, and motor, cognitive, perceptual, personality and social development.

Prerequisite: PY 101.

**PY 202 • 3 credits**

**Abnormal Psychology**

Study of development and characteristics of behavior disorders. Topics to be considered include: cause of abnormal behavior, transient personality reaction to acute or special stress, psychoneurotic disorders, and therapeutic measures.

Prerequisite: PY 101.

**PY 203 • 3 credits**

**Psychology of Adjustment**

A study of all sides of the complex problems of mental health and mental illness. The emphasis is on psychosocial models rather than medical disease models. Psychoanalytic and behavioral approaches are contrasted with humanist-existential concepts. Note that this course does not count toward requirements for psychology major.

Prerequisite: PY 101

**PY 204 • 3 credits**

**Social Psychology**

The study of experimental findings, theoretical and methodological issues in understanding the individual in a social context.

Prerequisite: PY 101

**PY 205 • 4 credits**

**Statistics for Psychology**

An introduction to analysis of quantitative data in psychology, including probability, descriptive statistics, correlation and regression, analysis of variance and data analysis by computer.

Prerequisite: PY 101.

**PY 210 • 4 credits**

**Experimental Methods**

An introduction to the design, administration and analysis of psychology experiments, including computer applications. Emphasis also on evaluation of research and scientific report writing.

Prerequisite: PY 101, 205.



**PY 215 • 3 credits**

**Adolescent Psychology**

A survey of theories of adolescent personality development, psychopathology and current issues in the field.

Prerequisite: PY 101.

**PY 220 • 3 credits**

**Educational Psychology**

Exploration of the relationships between basic psychological principles and their application to instructional environments.

Prerequisite: PY 101.

**PY 302 • 3 credits**

**Psychological Testing**

An introduction to basic principles and techniques of psychological testing, and a study of the major types of tests.

Prerequisite: PY 101, PY 205.

**PY 303 • 3 credits**

**Psychology of Learning**

A survey of learning principles from simple conditioning to complex creative behavior.

Prerequisite: PY 101, PY 205, PY 210.

**PY 305 • 3 credits**

**Physiological Psychology**

The study of the physiological basis of behavior. An emphasis on the neurological and hormonal factors underlying sensation, perception, motivation, emotion and learning.

Prerequisite: PY 101, PY 205, PY 210.

**PY 310 • 3 credits**

**Analysis of Data**

Stress on advanced statistical analysis for the social sciences together with a practical minimum of APL computer skills.

Prerequisite: PY 101, PY 205, PY 210.

**PY 320 • 3 credits**

**Psychology of Perception**

An overview of research methods and results in the area of perception. Special emphasis on role of stimulus variables and attention on the perceptual constancies, color, size, form and space perception.

Prerequisite: PY 101, PY 205, PY 210 (may be taken concurrently).

**PY 330 • 3 credits**

**Personality Theory**

Study of personality structure and development through analysis of the theoretical contributions of major personologists.

Prerequisite: PY 101, PY 202, junior or senior psychology major.

**PY 332 • 3 credits**

**Seminar in Comparative Psychology**

Study of genetic environmental influences on the development and evolution of animal behavior.

Prerequisite: PY 101, PY 205, PY 210.

**PY 350 • 3 credits**

**Psychology of the Exceptional Child**

A theoretical and practical analysis of exceptional intellectual, emotional or physical behavior in children.

Prerequisite: PY 101, PY 201.

**PY 370 • 3 credits**

**Group Dynamics**

This course is designed to familiarize the student with group dynamics as both an experiential activity and empirical science. Includes sensitivity training group.

Prerequisite: PY 101, PY 204, senior psychology major or consent of instructor.

**PY 375 • 3 credits**

**Psychology of Sex Differences**

This course is designed to stimulate discussion among men as well as women, by exploring topics such as the development of sex differences, socialization practices, attitudes, values and role expectations which affect the self-concept and interpersonal relationships.

Prerequisite: PY 101, PY 205, PY 210.

**PY 380 • 3 credits**

**Advanced Laboratory in Social Psychology**

An emphasis on social psychology as an experimental science focusing on the issues of methodology, design of experiments, manipulation of social variables, the ethics of experimentation, and the presentation of research findings.

Prerequisite: PY 101, PY 205, PY 210, PY 204.

**PY 402 • 3 credits**

**Theories of Learning**

A comparative study of the history and current status of the major theories and models of learning.

Prerequisite: PY 101, PY 205, PY 210, PY 303.

**PY 404 • 3 credits**

**History of Psychology**

A survey of the history of psychology within the context of the major theoretical systems developed within the field since the emergence of psychology as an experimental science.

Prerequisite: PY 101, and any two of the following: PY 220, PY 303, PY 320, PY 305, PY 434, PY 418.

**PY 406 • 3 credits**

**Counseling I**

Introduction to philosophies, theories and techniques of counseling, and demonstrations of various psychotherapeutic methods.

Prerequisite: PY 101, PY 202, PY 330. Senior psychology major only and/or permission of instructor.

**PY 407 • 3 credits**

**Counseling II**

Continuation of PY 406, plus tape experiences and some supervised practicum experiences.

Prerequisite: PY 406, and permission of instructor.

**PY 409 • 3 credits**

**Community Psychology**

A survey of the theories, techniques, and goals of community psychology, particularly as they relate to the community mental health movement.

Prerequisite: PY 101, and any three of the following: PY 201, PY 202, PY 215, PY 330, PY 406.

**PY 414 • 3 credits**

**Advanced Child Lab**

After a general introduction to the field of clinical psychology students study techniques of establishing rapport with children; interviewing, test administration, scoring, and interpretation; and report writing.

Prerequisite: PY 101, PY 201, PY 205, PY 210, PY 302.

**PY 416 • 3 credits**  
**Seminar in Clinical Psychopathology**

A multidisciplinary approach to the study of psychopathology stressing the analytic and social-learning positions. Critical examination of the symptomatology and dynamics of behavioral and developmental disorders. Prerequisite: PY 101, PY 202, PY 330, and senior psychology majors.

**PY 418 • 3 credits**  
**Behavior Modification**

The course begins with a discussion of ethical standards relevant to the modification of human behavior. Psychodynamic theory is reprinted to provide a contrasting theoretical perspective to the therapeutic use of behavior modification techniques. Classical and operant conditioning procedures are reviewed. Prerequisite: PY 101, PY 205, PY 210 (210 may be taken concurrently)

**PY 434 • 3 credits**  
**Cognitive Processes**

An advanced seminar in the psychology of human symbolic activity, stressing thinking and problem solving. Prerequisite: PY 101, PY 205, PY 210, PY 303.

**PY 435 • 3 credits**  
**Motivation**

A survey of the theoretical and empirical aspects of motivation as they relate to physiological processes. Prerequisite: PY 101, PY 205, PY 210, PY 305.

**PY 440 • 3 credits**  
**Seminar in Psychoanalytic Theory**

Critical study of Freudian and neo-Freudian conceptualizations of the psycho-sexual development of the individual: consideration of psychoanalytic approaches to neurosis and psychotherapy. Prerequisite: PY 101, PY 202, PY 330.

**PY 443 • 3 credits**  
**Advanced Topics in Learning**

Seminar and individual research on a series of advanced topics in the psychology of learning. Prerequisite: PY 101, PY 205, PY 210, PY 303.

**PY 447 • 3 credits**  
**Advanced Laboratory in Perception**

An intensive analysis of the methods and research findings in selected areas of perception. An experimental project in the area of perception is required. Prerequisite: PY 101, PY 205, PY 210, PY 320.

**PY 480 • 3 credits**  
**Field Work in Counseling Psychology**

A practical one day a week assignment in a cooperating state or private mental health facility. Where permitted, students would participate in learning about counseling, interviewing, referral and some evaluation techniques. On-site and departmental supervision is required, with a detailed final report. Prerequisite: PY 202, PY 302, PY 370, PY 406 and permission of instructor.

**PY 481 • 3 credits**  
**Practicum in Community Psychology**

Students and instructor develop a community-centered project involving problem assessment, program development and/or program evaluation. Prerequisite: PY 409.

**PY 409 • variable credits**  
**Special Topics in Psychology**

Advanced seminar usually offered for one semester only on a specific topic. Check course schedule for special topics seminars to be offered each semester.

**PY 495 • variable credits**  
**Independent Study**

**PY 496 • variable credits**  
**Directed Study**

**PY 498 • variable credits**  
**Individual Honors in Psychology**

Individual instruction and research on a selected topic. May be taken for one or two semesters with any faculty member in the department. Prerequisite: Admission by the department to the honors program.

**PY 499 • variable credits**  
**Individual Honors in Psychology**  
Course description same as above.

# Sociology and Anthropology

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## Faculty and Fields of Interest

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**Roberta Hazen Aaronson** • social work, grassroots community organizing, social policy

**John Bush** • research design, complex organizations, Black Identity

**Alex Dupuy** • sociology of development, political sociology, historical sociology, sociology of the Caribbean, social change

**Geraldine Gamburd** • social anthropology, myth and ritual, South Asia, egalitarian and cooperative community alternatives

**Jane Hilowitz** • American society, European society, social change

**Toby Huff** • Sociology of religion, personality and culture, theory

**Donna Huse** • social psychology, community sociology, peer-counseling

**Clark Spencer Larsen** • physical anthropology and archaeology, North America

**Yale Magrass** • social theory, sociology of knowledge, historical and political sociology, social change, social problems, social psychology, methodology

**Donald McKinley** • sociology of education and knowledge, family and kinship, mass society

**Larry Miller** • political sociology, sociology of class, social theory, sociology of art and literature

**R. Penn Reeve (chairperson)** • anthropology, race and ethnicity, social inequality, Brazil, U. S.

**Edward Ryan** • methodology, field studies, Eastern and Southeastern Asia, linguistics, socio-cultural change

**Gene Sharp** • social thought, conflict and war, social movements and revolution, political sociology

**Jack Stauder** • anthropology, political economy, social movements, Third World

**Virgilio Zanin** • sociology of deviant behavior, criminology, sociology of law

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## Sociology Major

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The department's major focus is the study of human beings and the analysis of collective action and the socio-cultural settings in which it occurs. The department offers courses in sociology, anthropology, social work and a number that are primarily interdisciplinary in nature. Sociology is the study of social behavior in its different forms. It is the study of whole societies and their basic institutions (e.g. religion). It also studies human groups on a smaller scale such as the family, peer group, and neighborhood.

Anthropology and sociology overlap somewhat though an anthropologist is more likely to study non-western societies and to emphasize somewhat more the biological base of human behavior, human evolution and a society's ethos. Social work is the application of concepts from disciplines such as: sociology, psychology, and anthropology to an area of concern in modern society. Social work and social action growing out of the basic disciplines (above) increasingly attempt not only to study and treat but create new social realities.

A major in this department may be chosen for the inherent satisfaction the knowledge provides. It also may be the foundation for social action or for graduate work in a basic discipline.

Those courses listed "SO or AN" are courses that bridge the fields of sociology and anthropology. Students may elect to gain credit in either field by registering in the course and selecting either prefix. Anthropology credits can be counted toward a sociology major.



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## Requirements

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Majors are required to take 30 credits in the department.

	Semester Credits:
SO 101 or AN 111 or SO 113-AN 113	3
SO 206 or 401	3
SO 200 or AN 208 or SO 402 or AN 405	3
Electives in Sociology or Anthropology	21
	<hr/> 30

Anthropology Minor	Sociology Minor	Sociology and Anthropology Courses
<p>The Department offers a Minor in Anthropology with the following requirements: Completion of at least 18 credits of which 9 must be at the upper division level. Specifically, they will include Introduction to Cultural Anthropology (AN 111), either Intro to Physical Anthropology (AN 110) or Intro to Archaeology (AN 261), Introduction to Anthropological Theory (AN 208) or Anthropological Theory (AN 405), and three additional upper level courses listed as Sociology/Anthropology or Anthropology.</p> <p>Furthermore, a student can request entrance to the Minor program in Anthropology after completing at least 54 credits with a cumulative grade point average of 2.0 and with a 2.5 grade point average in his/her major. Requests must be approved by the chairperson of the Sociology/Anthropology Department.</p>	<p>The department offers a Minor in Sociology with the following requirements: Completion of at least 18 credits, of which 9 must be at the upper division level. Three courses (as in the major) will be taken which include Introductory level courses (SO 101, AN 111, or SO/AN 113), a theory course (SO 200, AN 208, SO 402, or AN 405), and a methods course (SO 206 or SO 401), plus three upper division Sociology or Anthropology courses. All Anthropology courses can count for the Sociology minor, as they do for the major.</p> <p>Furthermore, a student can request entrance to the Minor program in Sociology after completing at least 54 credits with a cumulative grade point average of 2.0 and with at least a 2.5 grade point average in his/her major. Requests must be approved by the chairperson of the Sociology/Anthropology Department.</p>	<p><b>SO 101 • 3 credits</b>  <b>Introduction to Sociology</b>  A survey of the fundamental principles of sociology and the basic factors conditioning social processes and social behavior.</p> <p><b>SO 102 • 3 credits</b>  <b>Social Problems</b>  A survey of the various social problems in the contemporary world. Special emphasis will be placed upon analysis of social problems in American society.</p> <p><b>AN 110 • 3 credits</b>  <b>Introduction to Physical Anthropology</b>  A survey of the fundamental concepts of the science of man. This course concentrates upon the physical evolution of man, the comparison of the behavior of currently existing primates, and interdisciplinary searches into topical questions such as the evolution and nature of aggression and/or hierarchy and dominance.</p>

**AN 111 • 3 credits**  
**Introduction to Cultural Anthropology**

An Introduction to the basic concepts of social and cultural anthropology. Readings emphasize the comparative study of societies at different levels of socio-cultural integration and from different areas of the world. This may include a brief introduction to physical anthropology and archaeology.

**SO 113 or AN 113 • 3 credits**  
**Introduction to Social and Cultural Behavior**

This course offers a combined introduction to Anthropology and Sociology, useful both for those who do not have the occasion to take an introductory course in each field, and for those who want a general overview to help them decide to which upper-level courses to proceed.

**SO 200 • 3 credits**  
**Introduction to Sociological Thought**

An introduction to the enterprise of sociological theory. As such, it attempts to introduce students to the questions, problems and intellectual tasks of theorizing about society and our social lives as well as to expose students to some of the most important competing ways in which previous social theorists have gone about this task.

Prerequisite: SO 101.

**SO 202 • 3 credits**  
**Social Psychology**

The course explores some of the fundamental questions of social psychology — what is a human being? what are human relations? what is a group? — from the social

perspective generated by psychoanalytic theory. The focus is on the relation of the individual to the group when both are in the process of transformation. Readings from various social psychologists.

**SO 203 • 3 credits**  
**Introduction to Social Work**

This course will provide students with a theoretical framework for understanding the role of the social services in our society. The knowledge, values, and skills that underlie social work practice will also be examined.

Prerequisite: SO 101 or 102.

**SO 204 or AN 204 • 3 credits**  
**The American Indian**

A brief review of the pre-history of man in the Americas. A study of the people and cultures of America before the arrival of Europeans. The interaction between various Indian groups and different European forces. Historical and social outcomes of that interaction. A focus on the status of Indian groups in the United States in recent times.

**SO 205 • 3 credits**  
**Industrial Society and Human Problems**

A discussion of the values of modern society; of the structure of factory and bureaucracy. An analysis of the fragmentation of the community and of personal stress as effects of a complex society. Deviant and counter-cultural responses to industrial society and its power structure.

Prerequisite: A social science course.

**SO 206 • 3 credits**  
**Introduction to Research Methods**

An introduction to the concepts and methodology of social science research. A requirement for SO/AN majors.

Prerequisite: SO 101 or AN 111 or SO/AN 113.

**AN 208 • 3 credits**  
**Introduction to Anthropological Theory**

A historical, analytical and current review of the anthropological perspective. A study of several themes basic to anthropological thinking including comparison, holism, systems and processes, folk versus analytical perspectives, and case studies. The systematic nature of anthropological inquiry with testing of findings, theories, laws, generalizations and modes of research and interpretation will be noted in the reading of original sources.

Prerequisite: AN 111.

**SO 208 • 3 credits**  
**Seminar for Community Interns**

This course, taken in conjunction with contract learning, will provide students with the opportunity to integrate theory with community practice. Students will present and analyze their work situations to each other and support groups will be set up to deal with problems encountered in the work setting. The larger effort will be to develop a critical understanding of the relation of this field experience to the principles governing society as a whole and an overall strategy for meeting the needs of the community.

Prerequisite: SO 203 or permission of instructor.

**SO 210 or AN 210 • 3 credits**  
**Culture and Personality**

An analysis of personality development with particular stress upon the cultural determinants of identity, character and motivation. The thesis of national character formation as well as socio-cultural variations in psychopathology and normalcy will be examined.

Prerequisite: SO 101 or SO 113 or AN 111 and PY 101.

**SO 212 • 3 credits**  
**American Culture and Education**

A discussion of the nature and origins of the values of the industrial west, especially America. The origins of higher education and the sciences and their emergence as the leaders in the development of those values. The interaction between society and the educational systems and resulting social trends. The internal structure of the educational institutions and their function in modern society; the role of the behavioral sciences in a "post-industrial" society and to higher learning.

Prerequisite: One course in a Social Science or Education.

**SO 220 • 3 credits**  
**Social Change**

Analysis of patterns and processes of social and cultural change. Examination of the role of science, technology and religion in the shaping of social and economic structures and processes. Attention will be given to the role of social movements in contemporary and historical cases of socio-cultural change.

Prerequisite: SO 101.



**AN 221 • 3 credits****Premodern Social Systems**

A study of social order and disorder. Description of elementary forms of kinship using several ethnographies of people around the world. The analysis of social structures including features of opposition as well as those of order and complementarity.

Prerequisite: AN 111 or SO 113 or AN 113.

**SO 222 • 3 credits****Sociology of Stratification**

The study of the various ways in which different societies assign their members to higher and lower positions of prestige, power and possessions. A sociological analysis of the ways in which a person's stratificational rank influences his personality and life-opportunities in society.

**SO 226 or AN 226 • 3 credits**  
**Sociology of Africa**

A survey of change and conflict in African society, historically and at present. Particular attention will be paid to the effects of colonialism and African resistance to it.

Prerequisite: None.

**SO 227 or AN 227 • 3 credits**  
**Cultural Evolution**

The evolution of human societies from prehistoric to modern times. Focus will be the interaction between the development of technological forces and changes in social relations and institutions.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113.

**SO 228 • 3 credits****Sex Roles and Sexuality in American Society**

This course will study the changing definitions of the roles of men and women in American Society as we perceive it from our experience and from a social, historical, biological perspective. Class sessions will include the following: the development of male and female in the evolutionary system; human and animal sexuality; cross-cultural sexual identities; images of male and female in American literature, movies and the popular imagination; socialization and the development of sexual identity; problems of courtship and intimacy.

Prerequisite: Permission of instructor.

**SO 230 • 3 credits****Black Identity and the Social World**

This course is especially designed for black students and white students who are concerned with black heritage. Considerable time will be spent in studying the heritage of black people. We will examine the African past through literature, etc., examine the survival techniques which blacks developed in order to survive in an alien world, and carefully analyze the collective identity of black people at the present time in history.

Prerequisite: None.

**SO 232 or AN 232 • 3 credits**  
**Portuguese in the Americas**

A sociological examination of the Portuguese experience in the U. S. and Brazil with focus on immigration, inter-ethnic relations, problems of adjustment and opportunities in the two countries.

**SO 235 • 3 credits****Social Policy**

This course will provide students with an analysis of the relationship between social needs and societal response with an examination of the effectiveness of current policies in meeting human needs. The policies selected for analysis will be programs and provisions directed toward a specific population, i.e. elderly, women, etc. The policies to be studied will focus on a particular substantive area and may change with each semester that the course is offered.

Prerequisites: SO 101 or SO 203.

**SO 240 • 3 credits****Dynamics of Community Organization**

This course will provide students with an analysis of the theory and practice of community organizing with particular emphasis on the development of social action and community development techniques on the grass-roots level. This course will be conducted as a seminar with student participation in class discussions to be the major vehicle for the exchange and development of ideas. In addition, mini-lectures, field simulations, role-playing, guest speakers and field observations will be utilized.

**SO 248 or AN 248 • 3 credits**  
**Alternative Communities in Industrial Society**

This course encourages thought about the quality of experience in advanced industrial society and alternatives for regaining control over our life choices and livelihood. The technological

alternatives to mass production are considered, and egalitarian communities in which members jointly control decisions through participation in local economies, politics and technology are studied.

**SO 251 • 3 credits****Group Processes**

The class will present a theory of human potential, distress, and recovery, which is concerned with how to re-evaluate one's experience and life history from a powerful positive perspective. The class will use new rules of communication which allow equal time for everyone participating, stress the necessity both of sympathetic attention and spontaneous self-expression, and emphasize ways of communicating feelings that are repressed in everyday social relations.

Prerequisite: Permission of instructor required. Interview with student required.

**SO 252 • 3 credits****Analyzing Racism in America**

The course reviews protest movements and the role individuals, more particularly, Blacks, played in battling oppression and injustice.

Prerequisite: SO 101

**SO 253 • 3 credits****Urban Sociology**

An ecological and social psychological analysis of urban life in the United States. Urban institutions and their social relations with the urban community are given special attention.

Prerequisite: SO 101.



**SO 255 or AN 255 • 3 credits**  
**Peoples and Cultures of Europe**

An examination of selected societies of Europe from an anthropological perspective, with special attention paid to rural-urban relations and to processes of transformation and development. An attempt will also be made to account for the similarities and differences of the peoples and societies studied.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113.

**SO 257 • 3 credits**  
**Comparative Group Processes**

Communication in this class will be based on a different set of rules for group interaction than those which characterize most groups in this society. The goal of the class is to create a group based on the following principles: democratic communication, validation or communication, emotional expressiveness, sympathetic attention and rational reevaluation. The experience of this group will be a vantage point which will enable a comparison with the assumptions and values implicit in "normal" social interactions.

Prerequisite: Permission of instructor.

**AN 261 • 3 credits**  
**Introduction to Archaeology I**

An introduction to the principles of method and theory of modern American archaeology.

**AN 262 • 3 credits**  
**Introduction to Archaeology II**

An introduction to archaeological documentation of prehistoric socio-political organization. Emphasis on the development of state levels of social organization in an evolutionary perspective.

**SO 301 • 3 credits**  
**The Sociology of Work**

The study of the social organization of work in past and contemporary societies. Particular attention will be paid to the growth and consequences of the division of labor in society, including our own society.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113.

**SO 302 • 3 credits**  
**The Sociology of Art I**

The relationship between society and art and artists. Various problems will be taken up concerning the recruitment and careers of artists and the effects that these have had on their artistic work.

Prerequisite: either SO 101, SO 111, SO 113 or AN 113, History of Art or permission of instructor.

**SO 303 or AN 303 • 3 credits**  
**Family and Kinship: An Interdisciplinary Approach**

A study of the functions and stresses of the family in complex society. A comparison of family behavior in folk and urban cultures, a study of bio-social life (erotic behavior, child care and death) using the perspectives of several disciplines — psychoanalysis, sociology, and anthropology. Speculations on the future of the family.

Prerequisite: A social science course.

**SO 304 or AN 304 • 3 credits**  
**Third World Development**

A study of the "Third World" — its political economy and roots in world history and international relations. Focus on understanding the sources of underdevelopment and the possibilities for development. Prerequisite: SO 101, 111 or 113.

**SO 305 • 3 credits**  
**Political Sociology**

An exploration of sociological perspectives on the study of power relationships, political communities, political processes and institutions.

Prerequisites: SO 101, SO 113 or AN 113, PS 101, 102 or permission of instructor.

**SO 307 • 3 credits**  
**Sociology of Conflict and War**

An exploration of theories that humans are by nature aggressive or cooperative beings, of the nature, sources and dynamics of social conflict generally and war in particular, and of possible alternatives to war.

Prerequisite: SO 101 or permission of instructor.

**SO 308 • 3 credits**  
**Sociology of Religion**

Comparative sociological analysis of religious phenomena, and religious movements in industrial and non-industrial societies. Examination of the interplay between religion and social structure. Discussion of the church-sect typology and the institutionalizing of religious belief systems. Consideration will also be given to the influence of religious creeds upon patterns of thought and action and on sociocultural change.

Prerequisite: SO 101 or SO 113 or AN 113 and upperclass status.

**SO 309 or AN 309 • 3 credits**  
**Readings in Sociological and Anthropological Literature**

This course is designed for students who would like to do reading and writing on specific sociological and anthropological topics normally not included in the curriculum. Students will

work on these topics under the close supervision of individual instructors. Prerequisite: Junior or senior standing. Permission of instructor. Students are limited to one such reading course per semester.

**SO 310 • 3 credits**  
**Social Movements I**

A sociological analysis of the origin and development of social movements with an emphasis on detailed study of particular social movements.

Prerequisite: SO 101 or permission of instructor.

**SO 311 • 3 credits**  
**Social Movements II**

A continuation of Social Movements I with the exploration of additional case histories.

Prerequisite: SO 310.

**SO 312 • 3 credits**  
**Deviant Behavior**

Review of theory and research with emphasis on their implications for a general theory of deviant behavior. Sociological knowledge will be applied to the analysis of selected topics such as: organized crime, drug addiction, etc. Social factors and influences in deviant conduct are given heavy stress. Sociological analysis of the agencies of control will be included.

Prerequisite: SO 101, Juniors and Seniors.

**SO 314 • 3 credits**  
**Complex Organizations**

This course is specifically concerned with the workings of large formal organizations such as universities, hospitals, prisons, government organizations, etc. Attention will be given to the social interactions within the organizations, and especially how

organizations maximize efficiency given their bureaucracy structures.  
Prerequisite: SO 101.

**SO 319 • 3 credits**  
**Philosophy of Social Science**  
This course explores the philosophical underpinnings of science and "sciencing", first in the natural sciences and then in the social sciences. The ideas of "facts", "laws", "theories", and "hypotheses" are explained in a philosophically rigorous form, leading to further questions such as, can a "scientific truth" ever be found to be "wrong"? Case studies of scientific explanation and advance from the history of the social and natural sciences are studied. Thus an effort is made to understand what "science" is supposed to mean in the natural sciences and then comparison and exploration of the same issues in the social sciences is carried out.  
Prerequisite: SO 101 or 113 and one advanced SO course.

**SO 320 or AN 320 • 3 credits**  
**Junior Seminar**  
Students will discuss and write papers on aspects of a subject chosen for the semester.  
Prerequisite: For juniors only. Permission of instructor required.

**SO 321 or AN 321 • 3 credits**  
**Comparative Sociology of the Community**  
Man everywhere lives in localized clusters. These "communities" vary in seemingly myriad ways: the life goals they define; social organization; homogeneity; size; fixity of location; political, economic, and cultural relations with the

outside world; etc. Each is at once a mode of adaptation to the natural environment and constitutive of a particular sociocultural milieu. The course will examine various "community" forms with the aim of clarifying the nature of village, town and city forms in American society.  
Prerequisite: Introduction to Sociology or Anthropology.

**AN 322 • 3 credits**  
**Introduction to American Prehistory**  
A survey of the archaeology of the New World from the earliest evidence for humans in North and South America to the historic European contact.

**SO 322 • 3 credits**  
**Political Sociology of Nonviolent Conflict**  
An examination of the sociopolitical techniques of nonviolent action (protest, noncooperation and intervention), including its power theory, historical development, dynamics, mechanisms, and application in social conflicts.  
Prerequisite: SO 101, AN 111 or SO 113 or AN 113.

**SO 323 • 3 credits**  
**Seminar in Non-violent Conflict**  
Advanced seminar in the subject indicated by the title.  
Prerequisite: SO 322.

**SO 324 or AN 324 • 3 credits**  
**Women in Contemporary Society**  
Using an historical and comparative approach, this course examines the roles and status of women in contemporary societies. The course integrates theory of sexual inequality and its relation to other forms of social in-

equality and empirical analysis of the actual conditions of women. Women's participation in social movements in the U. S. and Third World countries is addressed as part of the analysis of the changing roles and statuses of women.

**AN 327 • 3 credits**  
**Myth and Ritual**  
Exploration of the significance of myth and ritual and the history of its study. Myths and rituals of a world wide sample are analyzed from functional, structural and symbolic points of view.  
Prerequisite: AN 111 or 113.

**SO 328 or AN 328 • 3 credits**  
**Cultural Ecology**  
The study of culture and society from an anthropological and ecological approach, focusing on the interaction between human societies and their natural environment.

**AN 330 • 3 credits**  
**Peoples of South Asia**  
This course will introduce students to the variety of social systems found in South Asia, including India, Pakistan, Tibet, Nepal and Ceylon. The contrasts between wheat and rice farming areas; tribal and peasant societies, and highland and lowland peoples will be examined. The effects of industrialization will be considered. The value systems of Buddhism and Hinduism will be introduced briefly.  
Prerequisite: AN 111 or SO 113 or AN 113.

**SO 331 • 3 credits**  
**Race and Ethnicity**  
A study of the concepts of "race" and "ethnic group" and the role these concepts play in social interaction and social differentiation.  
Prerequisite: SO 101 or 111 or 113.

**SO 332 • 3 credits**  
**Sociology of Revolution**  
An examination of the phenomenon of mass popular revolutions, utilizing theoretical and analytical writings and case studies. Attention will be given to the social conditions in which revolutions occur, their objectives, dynamics of the revolutionary process, changes in power distribution, alternative techniques of revolutionary action, and on social consequences.  
Prerequisite: SO 101 or AN 111 or 113 or permission of instructor.

**SO 337 or AN 337 • 3 credits**  
**Comparative Ethnic Relations**  
A comparative analysis of interracial and interethnic relations in various areas of the world including the U. S., Latin America, Africa, and Europe. An examination of the causes of interethnic conflict, assimilation, ethnic solidarity, and changes in ethnic identity.

**SO 340 • 3 credits**  
**Law and Society**  
Investigation of problems in the sociology of law, including lawmaking processes, administration of justice and correctional systems. Comparative analysis of legal systems and their administration.



**SO 341 or AN 341 • 3 credits**  
**Language in Society**

The nature of language; theories of meaning; the relation of language to interpersonal interaction, social systems, and systems of belief and value. Only a minimum of phonological and syntactical analysis which is basic to the main theme of the course will be introduced. Prerequisites: SO 101 or AN 111 or SO/AN 113.

**SO 342 • 3 credits**  
**Organization of Criminal Behavior**

A survey of major theories in sociology of crime and delinquencies. The theories include those of Durkheim, Lombroso, Freud, Merton, Sutherland, and others. This course analyzes institutionalized societal responses to crime in terms of policies relating to arrest, the judicial process, and correctional institutions.

**SO 345 or AN 345 • 3 credits**  
**Human Evolution**

Human Evolution is a systematic and multidisciplinary approach to the origin and evolution of the human species from its primate ancestors. Topics include the evolutionary relationships of the various groups of modern primates, the divergence and physical evolution of the human lineage and origin of modern Homo Sapiens. In

addition an attempt is made to correlate our knowledge of the behavior of the non-human primates, ethnography, fossils and archeology so as to gain insights into the origins and evolution of human social behavior and our distinctive cultural adaptation.

**SO 350 • 3 credits**  
**Readings in Sociological and Anthropological Literature I**

Directed readings and analysis in selected sociological topics. Prerequisite: Permission of instructor.

**SO 351 • 3 credits**  
**Readings in Sociological and Anthropological Literature II**

Directed readings and analysis in selected sociological topics. Prerequisite: Permission of instructor.

**SO 352 • 3 credits**  
**Readings in Sociological Literature III**

Directed readings and analysis in selected sociological topics. Prerequisite: Permission of instructor.

**SO 353 • 3 credits**  
**Readings in Sociological Literature IV**

Directed readings and analysis in selected sociological topics. Prerequisite: Permission of instructor.

**SO 360 or AN 360 • 3 credits**  
**Structures of Power and Inequality**

This course will consider many bases of inequality including the artificial distinctions of age, sex, race, and hereditary position in a family line, occupation, ethnicity, and nationality. Talents and temperaments are often specialized to one sex, one class, one caste, etc. This course will explore what bases of inequality (whether one or many) are found within a number of social systems. These alternate social forms of inequality will be cross compared. Prerequisite: SO 101 or AN 111 or SO 113 or AN 113.

**SO 369 or AN 369 • 3 credits**  
**Visual Symbols and Myth**

In order to coexist with unknown forces of nature and the cosmos, people in all cultures have developed elaborate systems of explanations. The systems are formulated in visual symbols, oral and written myth and rituals. Often these systems seem irrational and unpredictable; yet when such systems are carefully studied and analyzed they reveal pervasive human needs to give meaning and order to a seemingly chaotic world; and also to change what is perceived as an unsatisfactory order. It is the purpose of this course to study the underlying structure and content of visual symbols, myth, and ritual, and analyze the social implications of these systems.

**SO 401 • 3 credits**  
**Research Methods**

Language and social inquiry; issues related to ideas of knowing, explaining, understanding, confirming, etc.; evaluative and affective elements in inquiry; empirical testability of propositions; quantitative and qualitative procedures of data collection and analysis; study of example cases.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113 and one advanced course in a social science.

**SO 402 • 3 credits**  
**Sociological Theory**

This course focuses on the synthesizing and integrative functions of theory in the sociological enterprise. It seeks to awaken an awareness of the nature and role of concepts in theory construction, and to highlight the gains and losses which accrue in all linguistic statements about the world. The work of Marx, Durkheim, Weber, Veblen, Sorokin, G. H. Mead and R. K. Merton are given special attention, both as pioneering examples of theoretical innovation and as substantive points of departure for future inquiry. Prerequisite: SO 101 or SO 113 or AN 113 and one advanced sociology course.



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**AN 405 • 3 credits**

**Anthropological Theory**

An analysis of the major theoretical orientations of anthropologists toward the two central anthropological questions: the nature and origin of the human species and the nature and origin of culture and civilization.

Prerequisite: AN 111 or 113.

**SO 406 • 3 credits**

**Sociology of Art II**

Sociology of Art II will explore interrelationships between art making and the social context in which art is made. The course will explore theoretical and methodological questions related to sociology of art and will then focus upon one period or problem, e.g. the 19th century or artistic responses to the rise of industrialization.

**SO 407 or AN 407 • 3 credits**  
**Field Inquiry**

Research problem formulation, study design and the gathering and analysis of data in Sociology and Anthropology, with primary emphasis upon field work. In addition to reading and seminar discussions, each student will participate throughout the seminar in supervised field inquiry. Interested students should talk with the instructor about field work possibilities and arrangements. Upon the approval of the instructor, students may register for either 3 or 6 semester hours in a single semester or three semester hours in each of two successive semesters. Prerequisite: SO 101 or AN 111, or SO 113 or AN 113 and one advanced course in a social science, and permission of instructor.

**SO 420 or AN 420 • 3 credits**  
**Senior Seminar**

Students will discuss and write papers on aspects of a subject chosen for the semester.

Prerequisites: for seniors only. Permission of instructor required.

**SO 430 • 3 credits**  
**Seminar on Advanced Problems in Sociological Theory I**

Selected theoretical problems, theorists or schools of thought examined in depth. Prerequisite: Permission of instructor.

**SO 431 • 3 credits**  
**Seminar on Advanced Problems in Sociological Theory II**

Selected theoretical problems, theorists or schools of thought examined in depth. Prerequisite: Permission of instructor.

**SO 900**  
**Contract Learning**

**SO 492 or AN 492**  
**Honors Research**

**SO 495 or AN 495**  
**Independent Study**

# Women's Studies

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## Women's Studies

Women's Studies is a multidisciplinary approach to understanding the unique elements of women's experiences in, and contributions to society.

The Women's Studies Program brings together the resources of traditional disciplines — English, Philosophy, Anthropology, History, Psychology, Sociology, Political Science, Fine Arts and Nursing — in exploring the past as well as the pressing issues of the present and the possibilities for the future. Women's Studies has a distinctive style, stemming from certain values: connectedness to each other and to nature, awareness of the body and emotions, commitment to the fundamental equality of people, openness to democratic communication, pleasure in dialogue, and boldness in questioning.

As an academic program, Women's Studies can lead to a multidisciplinary major or the Women's Studies minor in conjunction with any undergraduate major.

## Faculty

Margaret Miller, Curriculum Director, Dept. of English  
Rita Moniz, Administrative Director, Dept. of Political Science  
Roberta Aaronson, Dept. of Sociology  
Diane Berense, Philosophy Dept.  
Eileen Carreiro, Dept. of Medical Technology  
Magali Carrera, Dept. of Art History  
Julie Cleare, Dept. of Psychology  
Phyllis Currier, College of Nursing  
Jean Doyle, Dept. of Political Science  
Geraldine Gamburd, Dept. of Sociology/Anthropology  
Donna Huse, Dept. of Sociology  
Barbara Jacobskind, Dept. of English  
Theodora Kalikow, Dept. of Philosophy  
Gerry Koot, Dept. of History  
Betty Mitchell, Dept. of History

The Faculty along with the following individuals constitute the Women's Studies Advisory Collective

Joyce Ames, Director of Health Services  
Shaleen Barnes, Librarian for Women's Studies  
Tich Dace, Dean of the College of Arts and Sciences  
Janet Freedman, Dean of Library and Communication Services

The College of Business and Industry is made up of three departments with majors in seven areas leading to the Bachelor of Science Degree.

**The Department of Accounting and Finance •** granting degrees in Accounting and Finance.

**The Department of Management •** granting degrees in Human Resources Management, Management, and Marketing.

**The Department of Textile Sciences •** granting degrees in Textile Chemistry and Textile Technology.

**Six specialized options are available in the Textile Technology Program:**

Fabrication,  
Dyeing and Finishing,  
Business Administration,  
Structural Science,  
Mechanical Engineering Technology,  
Electrical Engineering Technology,  
\*Fashion Buying and Merchandising  
or  
Retailing and Merchandising.

\*Through a cooperative program with the Fashion Institute of Technology in New York City.

Students in the Department may also select Textiles with a Business or Engineering option.

The programs in the College combine a general education with specialized study in specific areas of business and industry. Emphasis is placed upon the acquisition of a basic understanding of both

underlying theories and their practical applications. Graduates of these programs are well prepared for careers in administration, industrial management, research, teaching, or for advanced study at the graduate level.

An MBA program is offered in the Division of Continuing Studies.

M.S. Degrees in Textile Chemistry and Textile Technology are offered in the Textile Sciences Department.

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## Requirements for the Bachelor of Science Degree

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### Freshman English

All first year students in the College are required to take Freshman English (ENG 101, 102), a two-semester course in the basic skills of communication, written and spoken, unless specifically excepted by an advanced placement test administered by the department of English.

### Curriculum

Curriculum offerings reflect the need for adequate specialization, with a core of basic occupational skills necessary to all fields of specialization, together with a substantial segment of liberal arts and humanities and the opportunity for diversification into changing allied areas.

Students have available to them such valuable tools as a sophisticated computer installation (which may be used for a range of activities which includes case study analysis, business information production runs), television

production facilities, audio-visual aids, electronic learning aids, an FM radio station and exposure to special problem approaches, such as case studies, research projects, in-field situation exposure, and cooperative professional organization seminars.



# Accounting and Finance

## Faculty and Fields of Interest

**Edward Cormler** • accounting, taxation

**Charles Hague** • business law

**Raymond Jackson** • finance, quantitative analysis, financial management

**George Ladino** • accounting, computer sciences

**Alphee Laflamme (chairperson)** • accounting, computer sciences

**Kooros Maskooki** • finance, financial institutions, investments

**Robert Oxman** • accounting, taxation

**J. Roland Richard** • accounting, auditing

**Louis Robitaille** • cost accounting, taxation

**Priscilla Tabachnik** • accounting, cost accounting

The department of Accounting and Finance offers two major programs leading to the Bachelor of Science Degree in Accounting or in Finance. The candidate for either degree must satisfactorily complete one of the specified curricula. The Accounting major must include in this program 15 semester credits in the humanities or social sciences. The Finance major is required to include 21 semester credits in the humanities and the social sciences.

## The Department of Accounting and Finance Freshman Core Program

First year			Semester Credits:	First	Second
ENG 101	102	Freshman English		3	3
MA 101	102	Elements of College Mathematics		3	3
BA 115		Introduction to Business		3	
BA 112		Introduction to Computer Technology			3
AC 101	102	Accounting I and II		3	3
		Humanities or Social Science Electives		3	3
				15	15

## Accounting Major

Accounting as a discipline and as a profession provides a means of obtaining information essential to modern industry in making policy decisions and in setting up plans for successful business management. It serves to maintain the system of checks and balances so as to reduce the need for supervision, and to minimize errors, fraud, and waste. Furthermore, accounting

plays an important role in setting and enforcing standards of performance which improve efficiency, coordination and integration of business activities. The curriculum in accounting is designed to acquaint the student with the philosophy of accounting to give him a comprehension of accounting theory; to instruct him in technique; to develop his skill in the performance of

accounting; to train him to set up accounting systems and to interpret accounting data, and to develop a professional attitude.

Completion of a major in accounting prepares students for employment as public or industrial accountants or as accountants in government service and for graduate study in accounting and business.

## Requirements

Second Year			Semester Credits:	First	Second
EC	231	232	Economics I and II	3	3
MA	231	232	Elementary Statistics and Decision Theory	3	3
AC	201	202	Intermediate Accounting I and II	3	3
			Natural or Applied Science Electives	3	3
MK	321		Principles of Marketing	3	
			Humanities or Social Science Electives		3
				15	15

Third Year			Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II	3	3
AC*	301		Advanced Accounting		3
BA	311	312	Legal Framework of Business I and II	3	3
FI*	315		Financial Analysis	3	
AC*	351	352	Cost Accounting I and II	3	3
AC*	355		Accounting Information Systems I		3
AC*	203		Intermediate Accounting III	3	
				15	15

Fourth Year			Semester Credits:	First	Second
AC*	401		Auditing	3	
AC*	411	412	Taxation I and II	3	3
AC*	451		Contemporary Accounting Theory and Problems	3	
MN*	431		Business Policy		3
BA	350		Business Communications	3	
			Business Electives		6
			Humanities or Social Science	3	3
				15	15

\*Indicates courses that must be taken at SMU.

## Finance Major

The curriculum in finance seeks to develop in the student an understanding of business and economic structuring from the financial viewpoint. The basic objectives of the program are to provide an understanding of the contributions of the financial systems to the economy and to prepare students for careers in

financial management of industrial and commercial enterprises; commercial, savings and mortgage banking investment analysis and portfolio selection, and financial positions in government.

# **Requirements**

<b>Second Year</b>				<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
EC	231	232	Economics I and II		3	3
MA	231	232	Elementary Statistics and Decision Theory		3	3
			Natural or Applied Science Electives		3	3
AC	201	202	Intermediate Accounting I and II		3	3
			Humanities or Social Science Electives		3	3
					<b>15</b>	<b>15</b>

<b>Third Year</b>				<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
BA	321	322	Quantitative Business Analysis I and II		3	3
BA	350		Business Communications			3
BA	311		Legal Framework of Business I		3	
FI*	381		Money and Banking		3	
FI*	398		Financial Institutions		3	
FI*	315		Financial Analysis		3	
FI*	392		Fiscal Policy			3
FI*	382		Budget and Profit Planning			3
			Humanities or Social Science Elective			3
					<b>15</b>	<b>15</b>

<b>Fourth Year</b>				<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
FI*	483		Investment Analysis		3	
FI	484		Federal Tax Accounting			3
FI*	485		Seminar		3	
FI*	493		Financial Management of Corporations			3
MN	431		Business Policy			3
			Economics Elective		3	
			Business Elective		3	
			Humanities or Social Science Electives		3	3
			Unspecified Elective			3
					<b>15</b>	<b>15</b>

\*Indicates courses that must be taken at SMU.



## Faculty and Fields of Interest

**Theodore J. Along** • advertising and promotion

**William V. Bygrave** • policy and industrial management

**John Chopoorian** • marketing and small business management

**Roger Deveau** • quantitative analysis and management systems

**Thomas Higginson** • industrial management, labor relations

**Lawrence J. Lad** • business policy and administrative practices

**Merritt LaPlante** • marketing management and research

**Richard Legault** • computer science, operations management

**Lucia Miree** • industrial relations and personnel management

**Ponakanti B. Reddy** • quantitative analysis, computer technology, operations management

**Richard J. Ward** • managerial economics, international business management

**Donald Wetmore (chairperson)** • industrial relations, human resource development

**William C. Wild, Jr.** • management

**Robert Witherell** • organizational behavior, computer science

The Department of Management offers three major programs leading to a Bachelor of Science Degree: Human Resources Management, Management, and Marketing.

The candidate for the degree must satisfactorily complete one of the specified curricula. The Human Resources Management and Marketing majors must include in their programs 21 semester credits in the humanities and social sciences. The Management major is required to have 18 semester credits in the humanities and social sciences.

## The Department of Management Freshman Core Program

First Year			Semester Credits:	First	Second
ENG 101	102	Freshman English		3	3
MA 101	102	Elements of College Mathematics		3	3
BA 115		Introduction to Business		3	
BA 112		Introduction to Computer Technology			3
AC 101	102	Accounting I and II		3	3
		Humanities or Social Science Electives		3	3
				15	15

## Human Resources Management Major

Human Resources Management is devoted to the study of the human side of management. Its objective is to offer an understanding of problem solving in one of the most critical and interesting problem areas in organizations, the human relations

area. Included are studies of Personnel Management, a developing field with growing career opportunities, Labor Relations, and the relation of government regulations to equal opportunities, safety, union relations and other key management concerns.

Human Resources Management concentrates on a people-centered approach which is vital to success in a wide range of management careers.

## Requirements

Second Year			Semester Credits:	First	Second
EC	231	232	Economics	3	3
MA	231	232	Elementary Statistics and Decision Theory	3	3
			Natural or Applied Science Electives	3	3
IR	394		Negotiations, Mediation, Arbitration of Collective Bargaining Agreements	3	
BA	311		Legal Framework of Business		3
			Humanities or Social Science Electives	3	3
				15	15

Third Year			Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II	3	3
IR	396		History of Trade Unionism	3	
MN	341		Production Management	3	
MN	373		Human Relations in Business	3	
MK	321		Principles of Marketing	3	
MN	395		Managerial Psychology		3
MN	342		Time and Motion Study		3
BA	350		Business Communications		3
			Humanities or Social Science Elective		3
				15	15

Fourth Year			Semester Credits:	First	Second
IR	421		Labor Management	3	
IR	422		Personnel Management		3
IR	481	482	Human Resources Management	3	3
IR	462		Manpower Resources		3
MN	432		Administrative Practices		3
			Business Elective	3	
			Humanities or Social Science Electives	3	3
			Unspecified Elective	3	
				15	15

## Management Major

The management program gives the students a broad perspective of the organization and operation of large and small business enterprises. Careful selection, by the student, of junior and senior year elective business courses allows for alignment of coursework with the student's career goals. In addition, it is suggested that humanities and social

sciences electives in the areas of sociology, psychology, political science and economics be considered as particularly useful for the management student.

Further objectives of the curriculum are the improvement of the student's ability to identify problem areas and to make sound value judgments, the resources in

business, and emphasizing the analytical approach to decision making. To this end, the SMU Contract Learning program is strongly recommended for management students. This and other special program interests should be discussed at the earliest opportunity with the student's faculty advisor.

## Requirements

Second Year			Semester Credits:	First	Second
EC 231	232	Economics		3	3
MA 231	232	Elementary Statistics and Decision Theory		3	3
BA 311		Legal Framework of Business		3	
BA 350		Communications in Business			3
BA 214		Information Systems			3
		Natural or Applied Science Electives		3	3
		Humanities or Social Science Elective		3	
				15	15

Third Year			Semester Credits:	First	Second
BA 321	322	Quantitative Business Analysis I and II		3	3
MK 321		Principles of Marketing		3	
MN 341		Production Management		3	
MN 373		Human Relations in Business		3	
FI 312		Business Finance			3
MN 372		Managerial Economics			3
		Business Elective		3	
		Humanities or Social Science Electives			6
				15	15

Fourth Year			Semester Credits:	First	Second
MN 431		Business Policy		3	
IR 421		Labor Management		3	
IR 422		Personnel Management			3
MN 461		Industrial Management		3	
		Business Electives		3	6
		Humanities or Social Science Elective		3	
		Unspecified Electives			6
				15	15

## Marketing Major

The marketing curriculum is designed to prepare students for successful careers in the many phases of marketing and distribution of products and services throughout the economy.

Courses are oriented toward problem solving and management decision making. The total curriculum emphasizes knowledge and competence in marketing that will enable the graduate to progress well in the early stages of his

career; to develop the ability to analyze, plan, organize, coordinate, motivate and control; to think creatively; to communicate effectively, and to gain broad perspectives essential to the attainment of ownership or executive management responsibilities. Further career opportunities are available in research, sales management, brand/product management, retail management, and advertising and promotion.



## Requirements

Second Year				Semester Credits:	First	Second
EC	231	232	Economics		3	3
MA	231	232	Elements of Statistics and Decision Theory		3	3
BA	311		Legal Framework of Business		3	
BA	350		Business Communications			3
			Natural or Applied Science Electives		3	3
			Humanities or Social Science Electives		3	3
					15	15

Third Year				Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II		3	3
FI	312		Business Finance			3
MN	373		Human Relations in Business (or)			
IR	422		Personnel Management		3	
MK	321		Principles of Marketing		3	
MK	330		Promotional Strategy			3
			Marketing Elective			3
			General Business Elective		3	
			Humanities or Social Science Electives		3	3
					15	15

Fourth Year				Semester Credits:	First	Second
MN	431		Business Policy		3	
MK	422		Marketing Management			3
MK	451		Marketing Research		3	
			Marketing Electives		6	6
			Marketing or General Business Elective			3
			Humanities or Social Science Elective		3	
			Unspecified Elective			3
					15	15

## Accounting Courses

### AC 101 • 3 credits Accounting I

Accounting concepts and procedures are studied through the analysis, classification, recording and summarizing of business transactions. Financial statements are introduced and shown to be a source of essential information for management and others outside of the business.

### AC 102 • 3 credits Accounting II

A continuation of AC 101. The analysis of financial statements is elaborated upon through detailed consideration of each item on the balance sheet. Accounting principles are studied and the Statement of Changes in Financial Position is introduced.  
Prerequisite: AC 101.

### AC 201 • 3 credits Intermediate Accounting I

An overview of the entire accounting process designed to provide a gradual transition from the introductory course to a more rigorous level of analysis. A critical evaluation of the traditional accounting as it pertains to current assets and current liabilities is encouraged and correlated with the latest pronouncements of the Financial Accounting Standards Board.  
Prerequisite: AC 101, 102.

**AC 202 • 3 credits****Intermediate Accounting II**

A continuation of AC 201.

The critical review of accounting theory begun in AC 201 is extended to long-term investments and plant assets. Problems familiar to the long-term debt section and the stockholders' equity section of the balance sheet are explored in depth.

Prerequisite: AC 201.

**AC 203 • 3 credits****Intermediate Accounting III**

To cover the more specialized areas usually presented in Intermediate Accounting texts which ordinarily require more in depth analysis and knowledge of the more recent accounting pronouncements. These areas involve pensions, leases, tax allocation, financial analysis, and inflation accounting. Also any specific areas receiving current attention in accounting pronouncements will be discussed.

Prerequisites: AC 101, 102, 201, and 202.

**AC 301 • 3 credits****Advanced Accounting**

A study of special accounting areas including: retail land sales, franchising, business combinations, foreign operations, partnerships, insolvency, governmental and estates and trusts.

Prerequisite: AC 201, 202, and 203.

**AC 351 • 3 credits****Cost Accounting I**

Procedures for determining and measuring costs using job order cost and process cost systems are developed. Accounting for materials, labor and overhead costs using both manual and electronic data processing techniques is examined in

detail.

Prerequisite: AC 202.

**AC 352 • 3 credits****Cost Accounting II**

Cost planning and control techniques including standard costs, budgeting, control reports, variance analysis, cost behavior analysis, direct costing, and cost-volume-profit analysis are all thoroughly developed and studied.

Prerequisite: AC 351.

**AC 355 • 3 credits****Accounting Information Systems I**

A detailed study in the use of the systems approach and the use of the computer in supplying accounting information to a business enterprise.

**AC 361 • 3 credits****Industrial Accounting**

A presentation of the basic accounting principles, procedures, and terminology as they apply to a manufacturing organization. Emphasis is placed on the analysis of operating statements and their significance to management, creditors, and stockholders.

Prerequisite: Engineering or textile student.

**AC 401 • 3 credits****Auditing**

A study of the audit function as performed by the outside public accounting firm. All stages are covered — planning the audit, gathering evidence, review of internal control provisions, development of working papers, analysis of accounts, preparation of statements, and final audit report. The ethics of the accounting profession are stressed throughout the course.

Prerequisite: AC 301.

**AC 411 • 3 credits****Taxation I**

Federal Income Tax problems confronting the individual taxpayer including the self-employed individual.

**AC 412 • 3 credits****Taxation II**

A continuation of AC 411 with emphasis on the preparation of partnership and corporation tax returns.

Prerequisite: AC 411.

**AC 451 • 3 credits****Contemporary Accounting Theory and Problems**

Contemporary Accounting Theory and Problems is primarily a descriptive interpretation of the Opinions and Standards issued by the American Institute of Certified Public Accountants or its committees — the Financial Accounting Standards Board, the Accounting Principles Board and the Committee on Accounting Procedures — together with review or reports and articles from various accounting groups and individuals. In this manner, the student is exposed to the official concepts of accounting and at the same time acquires a broader view of the basic levels of financial accounting theory and practices by drawing upon methodological frameworks supported by empirical evidence.

Prerequisite: Accounting seniors only.

**AC 452 • 3 credits****Special Topics in Accounting**

The course focuses on the following special areas: the principles underlying the design and installation of accounting systems; the accounting role of the controller in an organization; accounting for governmental

and not-for-profit organizations.

Prerequisite: AC 301 and senior standing.

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**General Business Courses**

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**BA 112 • 3 credits****Introduction to Computer Technology**

An introduction to data processing emphasizing the use of computing machinery to solve information needs. Common business applications are used to examine a wide range of methods. The BASIC programming language is employed with interactive computing facilities to aid in understanding how the computer processes data.

**BA 115 • 3 credits****Introduction to Business**

A study of business organization centering on form, philosophy, activities within it, influence on the economy, and responsibility to society. It is meant to help the student develop a better understanding of the free enterprise system. (BA 116 may be substituted.)

**BA 116 • 3 credits****Fundamentals of Business Enterprise**

A primary emphasis in the course is placed on the study of the history and form of the business enterprise, the many activities that take place within it and the role of business in the economy. Serious attention is paid to several of the more recent issues of concern to business such as social responsibility, material shortages, etc. (BA 115 may be substituted.)



**BA 214 • 3 credits**  
**Information Systems**

A beginning course in systems analysis designed specifically for the student with prior knowledge of data processing and computer technology. Emphasis is placed on the interrelationship of each phase of systems development and the mastery of the tools of the systems analyst.  
Prerequisite: BA 112.

**BA 311 • 3 credits**  
**Legal Framework of Business I**

A study of contracts and the Uniform Commercial Code as it relates to sales, commercial paper, and secured transactions.

**BA 312 • 3 credits**  
**Legal Framework of Business II**

A study of the laws governing debtors, creditors and agencies. The formation, operation, and liquidation of the partnership and corporation are also discussed. Personal and real property including bailments, wills, estates and trusts are also covered.  
Prerequisite: BA 311.

**BA 321 • 3 credits**  
**Quantitative Business Analysis I**

QBA I and II: A two semester course designed to introduce the student to a wide range of quantitative decision making techniques in widespread business use today and to the processes of quantitative analysis. Interactive computing facilities and the case method are utilized in the preparation of solutions to problems business situations.

**BA 322 • 3 credits**  
**Quantitative Business Analysis II**

Continuation of BA 321.  
Prerequisite: BA 321.

**BA 350 • 3 credits**  
**Communications In Business**

A course in communication skills concentrating on the application of these skills in the business arena. Emphasis is placed on the development of techniques in such areas as business report writing, professional presentations, job interviews, applications, resume writing, memos, dictation, and the conduct of meetings.

**BA 370 • 3 credits**  
**ANS COBOL Language**

An independent study course designed to train students to code and debug application programs using the COBOL language. Machine problems and exercises are used to reinforce the material presented in sequential assignments. COBOL is introduced using unit record equipment followed by disk input output.  
Prerequisite: BA 112, BA 214.

**BA 471 • 3 credits**  
**Real Estate**

A basic, but intensive course covering legal, financial, and managerial aspects of residential real estate. Areas of study include legal framework, types of ownership vehicles, financing, appraisal, income property management, cash flow, tax applications, and real estate licensing examination preparation.

**BA 472 • 3 credits**  
**Insurance**

A course providing the necessary minimal insurance background for students contemplating a career in

business. Specific Insurance areas presented are: life, annuities, fire, homeowner, inland marine, workmen compensation, and general business liability.

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**Finance Courses**

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**FI 312 • 2 credits**  
**Business Finance**

An introduction to the nature of financial management. It presents the basic tools used in the decision making process as they pertain to the acquisition, management, and financing current and long term assets. It includes treatment of working capital policies, the time value of money, capital budgeting, and debt and equity financing.  
Prerequisite: AC 102.

**FI 315 • 3 credits**  
**Financial Analysis**

The course will provide appropriately prepared students an opportunity to learn and apply techniques of financial analysis and to consider related issues in the management of working capital, capital assets, and asset financing. Learning is fostered by the student's rigorous involvement in the analysis of case situations and the application of financial tools and concepts to their solution.  
Prerequisite: AC 202. For Accounting and Finance Majors only or permission of instructor.

**FI 381 • 3 credits**  
**Money and Banking**

The nature and functions of money and commercial banking and their historical development in the United States.

**FI 382 • 3 credits**  
**Budgeting and Profit Planning**

Detailed study of various types of budgets including coordination and administration of such programs; special budgeting and control techniques will be employed; emphasis will be given to the relationship of budget function to administrative and management aspects.

**FI 392 • 3 credits**  
**Fiscal Policy**

An introduction to recent developments in macro-economic theory and policy. Analysis of the impact of fiscal and monetary policy on the private sector. Topics include the determinants of income and output, information and growth.

**FI 397 • 3 credits**  
**Business Cycles and Forecasting**

A study is made of the dynamic forces on economic activity. National income accounting and analysis, economic indicators and measures, forecasting for the economy of the firm, and problems of stability and growth are considered.

**FI 398 • 3 credits**  
**Financial Institutions**

A detailed study of the operations of financial institutions and the interrelationships between their operations and economic activity. Emphasis is placed on the effect of economic forces on the operations of these institutions.

**FI 483 • 3 credits**  
**Investment Analysis**

Method and techniques of determining investment merit of various types of securities are evaluated. Study of the



place of bonds, preferred stocks and common stocks in various types of investment portfolios is made. The effect of the business cycle on investment policy will be examined and the importance of timing investment commitments will be stressed. Prerequisite: FI 381, FI 315.

**FI 484 • 3 credits**

**Federal Tax Accounting**

To provide an overview of the federal, state and local tax laws as they apply to individuals and businesses. To discuss specific tax laws which apply to individuals, partnerships and corporations with emphasis on tax planning rather than preparation of the specific tax forms.

**FI 485 • 3 credits**

**Seminar**

A conference course for students doing research or preparing thesis related to the field of Finance. Prerequisite: Available to seniors majoring in Finance.

**FI 493 • 3 credits**

**Financial Management of Corporations**

This course is designed for advance work in the management of corporate funds. Selected topics from the various fields of financial activity with emphasis on trends, current problems and research are studied. The topics emphasized include: capital expenditure policies, long-term and short-term financing problems, dividend policies, mergers and consolidations, and trends in financial markets. Prerequisites: FI 315, FI 483.

**FI 494 • 3 credits**

**International Financial Management**

This course provides a basic understanding of the forces that affect the relative value of currencies in international markets, and discusses the major problems encountered by the firm in financing international operations. Prerequisites: EC 231 and 232, FI 315.

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**Management Courses**

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**MN 341 • 3 credits**

**Production Management**

The course acquaints the students with the basic principles and methods of production management and control as well as the qualitative and quantitative approaches to problem solving in the production management area.

**MN 342 • 3 credits**

**Time and Motion Study**

The course acquaints the business student with the basic principles and approaches to methods engineering, work simplification, job enrichment, time study and their relationship to wage payment systems and the cost element.

**MN 345 • 3 credits**

**Manufacturing Services**

Emphasis will be placed on industrial procurement, production and inventory control, and consideration of the role of the computer in these areas.

Prerequisite: Upperclass standing; industrial experience; or a prior course in some type of industrial management.

**MN 372 • 3 credits**

**Managerial Economics**

The course introduces the student to the use of the

tools of economic analysis in formulating and solving management problems and effectively integrates economic analysis and the management viewpoint.

**MN 373 • 3 credits**

**Human Relations in Business**

The course attempts to give the student a deeper insight into the need for understanding human characteristics as well as technological and economic concepts in building a sound management policy.

**MN 395 • 3 credits**

**Managerial Psychology**

Managerial Psychology is designed to acquaint the student with the human problems within the supervisory and managerial levels of a business. Extensive emphasis is placed on the psychology of the manager and the managed.

**MN 431 • 3 credits**

**Business Policy**

This course deals with upper-level management problems in business. It encompasses all basic business fields and gives the student an opportunity to develop managerial decision-making procedures and abilities. Prerequisite: Senior level standing.

**MN 432 • 3 credits**

**Administrative Practices**

The manager's administrative abilities and knowledge of his role as an administrator are often more important than technical knowledge and skills. Therefore, a wide range of administrative situations are examined through case and real-life studies.

**MN 461 • 3 credits**

**Industrial Management**

Industrial activities, inter-relationships and essential principles for their coordination are examined in order that the student may get an overview of the scope of responsibilities involved.

**MN 462 • 3 credits**

**Management Policy**

This course gives special consideration to the policies of sales, procurement, personnel and finance. Problems involved in establishing responsibilities for the executive; plans of organization, facilities and techniques. Emphasis is placed on the case method of study.

**MN 481 • 3 credits**

**Management Seminar**

Readings and discussion of important research and literature in student's particular field of interest, culminating in a major written paper. Prerequisite: Open to seniors in the Departments of Management, Accounting and Finance.

**MN 483 • 3 credits**

**Small Business Seminar I**

Through a cooperative arrangement, student teams do actual business consulting for real companies. Prerequisite: Upperclass standing.

**MN 484 • 3 credits**

**Small Business Seminar II**

Additional actual contact with real businesses, but in the role of consultant to other student teams. Prerequisite: MN 483.

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## Marketing Courses

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### **MK 321 • 3 credits**

#### **Principles of Marketing**

A basic understanding of the role and scope of responsibilities facing contemporary marketing management is the major objective of this course. Emphasis is placed on the integration of marketing principles into an organized approach for decision making.

### **MK 330 • 3 credits**

#### **Promotional Strategy**

Emphasis is placed on developing a basic understanding of the factors affecting promotional decisions as well as the role of promotional effort in market strategy planning. The basic principles of advertising, sales-promotion and personal selling are integrated. Prerequisite: MK 321.

### **MK 354 • 3 credits**

#### **Retail Management**

An examination of the basic concepts fundamental to understanding the retail environment and the operation of retail firms are covered.

### **MK 358 • 3 credits**

#### **Fashion Merchandising**

Emphasis is placed on creating student awareness of the knowledge and skills which fashion buyers need to make decisions. The fashion operations of various retail stores are observed and analyzed.

### **MK 360 • 3 credits**

#### **Industrial Marketing**

A study of contemporary market strategy techniques in industrial companies. Emphasis is placed on the case approach where students are provided an opportunity to develop strategies in response to

given market opportunities and competitive behavior. Prerequisite: MK 321.

### **MK 410 • 3 credits**

#### **Consumer Behavior**

A study of consumer decision processes as a series of activities related to the purchase and consumption of goods. Emphasis is given to contemporary thought or the consumer problem-solving process, namely problem recognition, search, evaluation, commitment and post-purchase behavior. Prerequisite: Senior level standing.

### **MK 420 • 3 credits**

#### **International Marketing**

A systematic treatment of marketing on a global scale. Emphasis is placed on the study of the dimensions of foreign market environments, marketing across national boundaries and the management of marketing programs simultaneously in two or more national environments. Prerequisite: Senior level standing.

### **MK 422 • 3 credits**

#### **Marketing Management**

This course is based on the management point of view, being decision-oriented and analytical. It sets forth a definite way of surveying current developments in marketing practice, with the advantage of allowing the student freedom, via the case approach, in his choice of executive action. Prerequisite: MK 321. Senior level standing in marketing.

### **MK 431 • 3 credits**

#### **Advertising**

A detailed study is made of the principal form and applications of advertising alternatives as a part of overall

market strategy planning. Considerable emphasis is also placed on applied problems which allow for student planning of advertising campaigns. Prerequisite: MK 321, MK 330.

### **MK 432 • 3 credits**

#### **Sales Management**

Sales programs must be formulated and then implemented. In this age of accelerating product complexity, this course will deal with the sales manager who must understand the importance of these major responsibilities. Prerequisite: MK 321

### **MK 440 • 3 credits**

#### **Physical Distribution**

An examination of the management of marketing channel systems and sub-systems, i.e., transportation, warehousing, inventory control, material handling, packaging, and location analysis. Contemporary thought on research techniques as applied to channel operations are reviewed. Prerequisite: MK 321.

### **MK 451 • 3 credits**

#### **Marketing Research**

An examination of the market research process as used in approaching contemporary marketing problems. Emphasis is placed on the current status of research techniques and their application. Prerequisite: MK 321 and MA 231.

### **MK 460 • 3 credits**

#### **Social Issues in Marketing**

An examination and appraisal of contemporary thought on the extent to which marketing activities influence the ethical and social values of society. Prerequisite: Senior level standing in Marketing.

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## Human Resources Management Courses

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### **IR 394 • 3 credits**

#### **Negotiations, Mediation and Arbitration of Collective Bargaining Agreements**

Student participation in case studies in resolving disputes and grievances in labor relations, including examination of the nature of collective bargaining practices and agreements and the arbitration process.

### **IR 396 • 3 credits**

#### **History of Trade Unionism**

The history and current nature of organized labor; the structure, policies, and practices of modern labor unions.

### **IR 421 • 3 credits**

#### **Labor Management**

This is a course dealing with the social background and present status of labor organizations. It emphasizes the many labor-management problems that are evident today and aims to help the student understand the various techniques employed in collective bargaining procedures.

### **IR 422 • 3 credits**

#### **Personnel Management**

An exploration of that part of management devoted to a people-centered approach and its integration with overall goals of organization. Emphasis is placed on employment, compensation, and training and development of individuals.

### **IR 462 • 3 credits**

#### **Manpower Resources**

A study on how to relate the human resources of organizations with the policies and practices of management. It emphasizes the need to motivate and develop people in the pursuit of organizational goals.



## IR 481 • 3 credits Seminar

A conference course for students doing research or developing a specialized interest related to the field of industrial relations. Frequent field trips and outside lecturers from business are involved.

## IR 482 • 3 credits Seminar

A continuation of IR 481.  
Prerequisite: IR 481.

## Faculty and Fields of Interest

**Martin Bide** • dyeing

**Edmund Dupre** • finishing and printing

**Yong Ku Kim** • fiber physics

**Kenneth Langley** • microscopy and statistics

**Ronald S. Perry (chairperson)** • textile chemistry

**Frederick Ritz** • weaving

**William Sliveira** • yarn processing

**Arthur Swaye** • design

**Alton Wilson** • design, non-wovens, testing

The future of the Textile Industry in the United States will depend significantly upon the quality of the technical and managerial leadership attracted to the industry. The technological, chemical and marketing advances of the industry in recent years have opened the door to many career opportunities.

Textiles also provide a unique opportunity for those who seek a lucrative profession. Today's modern textile industry has become a universe of diversification, where one can develop individual talent and specialize in aspects of manufacturing, chemistry, marketing, management, styling and design. Textiles have their application in every conceivable field of modern day living from the products we wear, to industry, the environment, medicine, and to our explorations in space and the oceans.

It is very encouraging that industry and government continue to have tremendous need for those who are educated in textile technology and textile chemistry. The opportunities for the graduating student are unlimited and present a challenging, exciting, and very rewarding future. More than ever, the textile student must enter the field with a mission to excel, if the U. S. industry is to compete effectively in world markets. It is the aim of the

curriculum at SMU to develop students with the desire to contribute to the industry's future.

## Textile Sciences Programs

The Textile Sciences Department offers two programs leading to the Bachelor of Science Degree: Textile Technology and Textile Chemistry.

Textile Technology majors have a choice of six options when they enter the junior year: Structural Science, Dyeing and Finishing, Business Administration, Fashion Buying and Merchandising\* or Retail and Merchandising (through SMU's Marketing Department which is not specifically textiles, but is a broad-based retailing and merchandising program), Mechanical Engineering Technology and Electrical Engineering Technology. The Structural Science option offers a more detailed study in the science of converting fibers into yarns and yarns into fabrics. The Dyeing and Finishing option provides a student with an excellent background in the science of textile structures as well as specialized instruction in the application of dyestuffs and chemical finishing agents such as permanent press, water repellents, and fire-retardants. The Business Administration option affords

the student the opportunity to acquire in-depth knowledge of such subjects as marketing, finance or management. This option also better prepares the student for graduate study in Business Administration. With the Fashion Buying and Merchandising option, the eligible student spends three years at SMU and one at the Fashion Institute of Technology in New York. This program allows a broad exposure to the principles of the retailing and merchandising of textile apparel goods. The general Retail and Merchandising option is available through the Marketing Department at SMU for a limited number of textile students. The Mechanical Engineering Technology option concentrates on looking at the textile industry via an engineering approach, especially in the area of material sciences. The option in Electrical Engineering Technology enables the student to gain specialization in the application to textile production of electronics, digital logic and design, control systems, and computers.

The Textile Chemistry program gives the student a comprehensive background in the field of chemistry with specialized instruction in textile chemistry. The Textile Chemistry Program will



prepare the student for a textile career in quality control, production, research and development or chemical sales.

\*This is a cooperative program available to qualified students through the Fashion Institute of Technology in New York City. It is important to note that students must be accepted by F.I.T.'s admission requirements and pay their tuition fees.

Two graduate programs, one leading to the Master of Science Degree in Textile Sciences and the other in Textile Chemistry, are offered by the Textile Sciences Department. Details of these are listed in the Bulletin of the Graduate School.

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### Requirements

All students in the Textile Sciences Department are required to take a minimum of 12 credits in the humanities and social sciences. The humanities and social sciences requirements must be evenly divided in credits.

Courses in the humanities may be elected from the offerings of the department of English, Foreign Literature and Languages, Philosophy or in the College of Visual and Performing Arts (except studio and design courses, chorus or band courses). Courses satisfying the requirements in the social sciences can be taken in the departments of Economics, Political Science, Psychology and Sociology. Courses offered by the department of History can be chosen to satisfy either the humanities

or the social sciences requirements. For students not selecting the Business Administration option, certain courses in management may satisfy social science requirements.

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### Department Policy Statements

1. Please be advised that transfer students must either take the Textile Orientation course or a textile elective course to satisfy the 6 credit requirement for textile orientation needed for graduation.

2. Contract Learning credits are limited to 3 credits toward graduation requirements. Also, these 3 credits cannot be used to satisfy mandatory textile courses but only for open textile electives or other courses offered outside of the department.

3. Students must declare an option in the Textile Technology program by the spring registration period of the sophomore year. Changes in options must be submitted and approved in writing by the department Chairperson.

4. Transfer students should be aware that scheduling problems will very likely occur because most transfer students try to schedule courses between various years such as freshman and sophomore years. The University schedules courses to avoid conflicts in any one year and for each major and option. It may be possible to schedule courses to avoid conflicts between years of study. Therefore, it is the responsibility of transfer students to work out their schedule problems. These

scheduling problems may delay meeting graduation requirements.

Transfer students should try to get on track with the curriculum as soon as possible.

5. It is the students' responsibility to follow their course program semester by semester as scheduled for their major and year of graduation.

If a student fails to take a course that should be taken in a particular semester, then the student will have to bear the consequences, including the possibility of not graduating as scheduled.

6. Programs are effective for entering freshman and incoming transfer students, fall of 1981.

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### Textile Chemistry

The Textile Chemistry curriculum is designed to give the student a thorough preparation in basic chemistry. In addition to specialized instruction in textile chemistry, industry employs graduates in this field for positions in quality control, production, research and development, sales and purchasing.

# Requirements

First Year				Semester Credits:	First	Second
CH	151	152	Principles of Modern Chemistry		3	3
CH	165	166	Introduction to Experimentation		2	2
MA	111	112	Analytic Geometry and Calculus I, II		4	4
ENG	101	102	Freshman English		3	3
			Humanities or Social Science		3	3
					15	15

Second Year				Semester Credits:	First	Second
CH	251	252	Organic Chemistry		3	3
CH	265	266	Organic Chemistry Laboratory		2	2
MA	211		Analytic Geometry and Calculus III		4	
MA	212		Differential Equations			3
PH	111	112	Physics I, II		3	3
PH	121	122	Physics Laboratory (biweekly)		1	1
			Literature		3	3
TC	302		Elementary Dyeing			3
					16	18

Third Year				Semester Credits:	First	Second
CH	305		Modern Methods of Chemical Analysis		3	
CH	307		Procedures of Chemical Analysis		2	
CH	315	316	Physical Chemistry I, II		4	4
CH	320		Programming in Computer*			3
PH	211		Physics III		3	
PH	221		Physics Laboratory (biweekly)		1	
			Unspecified Textile Electives			6
			Humanities or Social Sciences			3
TC	421		Chemical Technology of Finishing I		3	
					16	16

Fourth Year				Semester Credits:	First	Second
TC	410		Polymer Chemistry			3
TC	401		Advanced Dyeing		3	
TT	462		Microscopy		3	
TC	411		Textile Printing			3
TC	422		Chemical Technology of Finishing II			3
TC	442		Chemistry of Fibers		3	
TC	431		Industrial Chemical Analysis		3	
			Humanities or Social Sciences			3
TT	431		Physical Testing			3
					15	12

Total credits: 123

\*May not be offered every year.

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## Textile Technology

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### Requirements

All Textile Technology students must take a CORE PROGRAM of studies along with one of six (6) option areas of study.

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### The CORE PROGRAM consists of the following:

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Textile Courses			Credits
TT	104	Textile Orientation	6
TC	325	Textile Chemistry I	3
TC	211 212	Fabric Technology I, II	6
TT	221	Fabric Design I	3
TC	462	Survey of Man-Made Fibers	3
TT	201 202	Yarn Technology I, II	6
TT	431	Physical Testing	3
TT	302	Elementary Dyeing	3
TC	421	Chemical Technology of Finishing I	3
TT	473	Non-woven Fabric Structure	3
TT	231	Knit Technology I	3
TT	411	Statistical Methods and Quality Control	3
			<hr/> 45

Non-Textile Courses			Credits
ENG	101 102	Freshman English	6
ENG	266	Professional Writing	3
CH	101 102	General Chemistry	6
CH	103 104	General Chemistry Lab	2
PH	101 102	Introduction to Physics I, II	6
PH	103 104	General Physics Lab	2
MA	101 102	Elements of College Mathematics I, II*	6
BA	112	Introduction to Computer Technology*	3
			<hr/> 15
			49

Total CORE credits: 94

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\*Engineering Option students must substitute the following:

MA	105 106	Technical Calculus I, II	(6 credits)
CS	261	Principles of Computer Programming	(3 credits)

†EC 231, 232 Economics I, II required social science courses for Retail and Merchandising as well as Business Administration Option students.

General Psychology (PY 101) is a required social science for Retail and Merchandising students.

Of the total 15 credits assigned to humanities/social sciences, nine credits must be in the social sciences.



The options available to students are:

Structural Sciences  
Dyeing and Finishing  
Business Administration  
Retail and Merchandising\* or  
Fashion Buying and Merchandising\*\*  
Mechanical Engineering Technology  
Electrical Engineering Technology

\*Through the Marketing Department at Southeastern Massachusetts University

\*\*Through a cooperative program with the Fashion Institute of Technology in New York City

First Year			Semester Credits:	First	Second
(All Textile Technology Students)					
ENG 101	102	Freshman English		3	3
MA 101	102	Elements of College Mathematics I, II†		3	3
CH 101	102	General Chemistry		3	3
CH 103	104	General Chemistry Lab		1	1
TT 104		Textile Orientation		3	3
		Humanities/Social Sciences††		3	3
				16	16
				(17)††	(17)††

†Engineering option students to substitute MA 105, 106 Technical Calculus I, II (6 credits)

††Mechanical Engineering Technology option students take Physics and Physics Laboratory in place of the Humanities/Social Sciences requirements which results in 17 credit semesters:

PH 101	102	Introduction to Physics I, II			(6 credits)
PH 103	104	General Physics Laboratory			(2 credits)

#### Structural Sciences Option

Second Year			Semester Credits:		First	Second
TT 325		Textile Chemistry I			3	0
TC 211	212	Fabric Technology I, II			3	3
ENG 266		Professional Writing			0	3
PH 101	102	Introduction to Physics			3	3
PH 103	104	General Physics Laboratory			1	1
TC 302		Elementary Dyeing			0	3
BA 112		Introduction to Computer Technology			3	0
		Humanities/Social Sciences			3	3
					16	16

Third Year			Semester Credits:	First	Second
TT	321	Fabric Structure		0	3
TT	231 232	Knit Technology I, II		3	3
TT	311	Fabric Technology III		3	0
TT	201 202	Yarn Technology I, II		3	3
TT	221 222	Fabric Design I, II		3	3
TT	473	Non-woven Fabric Structure		0	3
TC	462	Survey of Man-made Fibers		3	0
		Electives*		3	3
				18	18

Fourth Year			Semester Credits:	First	Second
TC	421	Chemical Technology of Finishing I		3	0
TT	301	Yarn Technology III		3	0
TT	411 412	Statistical Methods and Quality Control		3	3
TT	481	Plant Engineering		3	0
TT	431	Physics Testing		0	3
		Electives*		3	6
				15	12

Total Credits: 127

\*Distribution requirements for 15 elective credits:

Open Electives	6
Textile Electives	6
Humanities/Social Sciences	3

#### Business Administration Option

Second Year			Semester Credits:	First	Second
TC	325	Textile Chemistry		3	0
TC	211 212	Fabric Technology I, II		3	3
ENG	266	Professional Writing		0	3
PH	101 102	Introduction to Physics I, II		3	3
PH	103 104	General Physics Lab		1	1
TC	302	Elementary Dyeing		0	3
BA	112	Introduction to Computer Technology		3	0
		Humanities/Social Sciences		3	3
				16	16

Third Year			Semester Credits:	First	Second
TT	231 232	Knit Technology I, II		3	3
TT	201 202	Yarn Technology I, II		3	3
TT	473	Non-woven Fabric Structure		0	3
TT	221	Fabric Design I		3	0
TC	462	Survey of Man-made Fibers		3	0
		Electives*		3	3
		B.A. Courses**		3	6
				18	18

Fourth Year			Semester Credits:	First	Second
TC	421	Chemical Technology of Finishing I		3	0
TT	411 412	Statistical Methods and Quality Control		3	3
TT	481	Plant Engineering		3	0
TT	431	Physical Testing		0	3
		Electives*		3	0
		B.A. Courses**		3	6
				15	12

Total Credits: 127

\*Distribution requirements for 9 elective credits:

Open Electives	3
Textile Electives	3
Humanities/Social Sciences	3

\*\*A module of business courses must be selected with the advice and consent of the Textile Department and the appropriate Business Department prior to registering for the fall semester of the junior year.

#### Business Electives

The following is a listing of the approved Business Administration courses available, other courses available upon approval of the chairperson of the Departments of Accounting and Finance and Management and the student's advisor.

Labor Management  
Industrial Management  
Economics I and II  
Time and Motion Study  
Managerial Economics  
Principles of Finance  
Money and Banking  
Public Finance

Principles of Marketing  
Production Management  
Human Relations

Economics may also satisfy Humanities and Social Sciences requirements.

#### Dyeing and Finishing Option

Second Year			Semester Credits:	First	Second
TC	325 326	Textile Chemistry I, II		3	3
TT	211 212	Fabric Technology I, II		3	3
ENG	266	Professional Writing		0	3
PH	101 102	Introduction to Physics I, II		3	3
PH	103 104	General Physics Lab		1	1
TC	302	Elementary Dyeing		0	3
		Humanities/Social Sciences		6	0
				16	16



Third Year			Semester Credits:	First	Second
TT	322	Fabric Structure		0	3
BA	112	Introduction to Computer Technology		3	0
TT	201	202 Yarn Technology I, II		3	3
TT	473	Non-woven Fabric Structure		0	3
TC	462	Survey of Man-made Fibers		3	0
TT	221	Fabric Design I		3	0
TT	462	Microscopy		3	0
		Electives*		3	9
				18	18

Fourth Year			Semester Credits:	First	Second
TC	421	422 Chemical Technology of Finishing I, II		3	3
TT	231	Knit Technology I		3	0
TT	411	412 Statistical Methods and Quality Control		3	3
TT	481	Plant Engineering		3	0
TT	431	Physical Testing		0	3
TT	411	Textile Printing		0	3
TT	401	Advanced Dyeing II		3	0
				15	12

Total Credits: 127

\*Distribution requirements for 12 elective credits:

Open Electives	6
Textile Electives	3
Humanities/Social Sciences	3

#### Retail and Merchandising Option

Second Year			Semester Credits:	First	Second
TC	325	Textile Chemistry		3	0
TC	211	212 Fabric Technology I, II		3	3
ENG	266	Professional Writing		0	3
PH	101	102 Introduction to Physics I, II		3	3
PH	103	104 General Physics Lab		1	1
TC	302	Elementary Dyeing		0	3
BA	112	Introduction to Computer Technology		3	0
		Humanities/Social Sciences		3	3
				16	16

Third Year			Semester Credits:	First	Second
TT	231	232 Knit Technology I, II		3	3
TT	201	202 Yarn Technology I, II		3	3
TT	221	Fabric Design I		3	0
TC	462	Survey of Man-made Fibers		3	0
		R&M Courses†		6	9
		Humanities/Social Sciences		0	3
				18	18

Fourth Year			Semester Credits:	First	Second
TC	421	Chemical Technology of Finishing I		3	0
TT	431	Physical Testing		0	3
TT	462	Microscopy		3	0
TT	473	Non-woven Fabric Structure		0	3
TT	411	Statistical Methods and Quality Control		3	0
		Specified Elective		3	0
		R&M Courses†		3	6
				15	12
			Total Credits: 127		

†Twenty-four credits to be selected from the following list in order to satisfy the Retail and Merchandising option:

			Credits
AC	101	Accounting I	3
MK	431	Advertising	3
MN	395	Managerial Psychology	3
MK	354	Retail Management	3
MK	358	Fashion Buying and Merchandising	3
MK	410	Consumer Behavior	3
BA	321	Quantitative Business Analysis	3
MK	321	Principles of Marketing	3
MK	330	Promotional Strategy	3

#### Mechanical Engineering Technology Option

Second Year			Semester Credits:	First	Second
MA	203	Technical Calculus		3	0
ENG	266	Professional Writing		0	3
TM	231 232	Mechanics I, II		3	3
TM	101	Graphics I		0	2
TC	325	Textile Chemistry I		3	0
TT	211 212	Fabric Technology I, II		3	3
CS	261	Principles of Computer Programming		0	3
TC	302	Elementary Dyeing		0	3
		Humanities/Social Sciences		6	0
				18	17

Third Year			Semester Credits:	First	Second
TT	201 202	Yarn Technology I, II		3	3
TT	221	Fabric Design I		3	0
TM	302	Kinematic Analysis of Machines		3	0
TM	306	Mechanics of Materials I		3	0
TM	222	Elements of Materials Science		0	3
TC	462	Survey of Man-made Fibers		3	0
TT	473	Non-woven Fabric Structure		0	3
		Electives*		0	6
				15	15

Fourth Year				Semester Credits:	First	Second
TT	431		Physics Testing		0	3
TT	411	412	Statistical Methods & Quality Control		3	3
TC	421		Chemical Technology of Finishing I		3	0
TM	412		Instrumentation and Control Circuits		3	0
TT	231	232	Knit Technology I, II		3	3
			Electives		3	6
					15	15

Total Credits: 129

\*Distribution requirements for 15 elective credits:

Open Electives	6
Textile Electives	6
Humanities/Social Sciences	3

#### Electrical Engineering Technology Option

Second Year				Semester Credits:	First	Second
CS	261		Principles of Computer Programming		0	3
PH	101	102	Introduction to Physics I, II		3	3
PH	103	104	General Physics Lab I, II		1	1
MA	203		Technical Calculus III		3	0
ET	221	222	Electric Circuits I, II		3	3
ET	251	252	Electrical Technology Lab I, II		1	1
TC	325		Textile Chemistry I		3	0
TT	211	212	Fabric Technology I, II		3	3
TC	302		Elementary Dyeing		0	3
					17	17

Third Year				Semester Credits:	First	Second
ENG	266		Professional Writing		0	3
TT	201	202	Yarn Technology I, II		3	3
TT	221		Fabric Design I		3	0
TC	462		Survey of Man-made Fibers		3	0
ET	315		Instrumentation		3	0
EE	361		Digital Logic and Design		0	3
TT	473		Non-woven Fabric Structure		0	3
			Electives*		3	6
					15	18

Fourth Year				Semester Credits:	First	Second
TC	421		Chemical Technology of Finishing I		3	0
TT	411	412	Statistical Methods and Quality Control		3	3
TT	431		Physical Testing		0	3
TT	231	232	Knit Technology I, II		3	3
ET	341		Electromechanical Energy Conversion		3	0



ET 485	Feedback Controls		
	or	0	3
CS 261	Principles of Computer Programming		
	Electives*	3	3
		15	15

**Total Credits: 129**

\*Distribution requirements for 15 elective credits:

Humanities/Social Sciences	9
Open Electives	6

### Textile Sciences Electives

Elective courses may be selected from any of the Textile Chemistry or Textile Technology courses listed provided the prerequisites if any have been met. Courses specified for non-textile majors may not be taken.

### Textile Chemistry Courses

#### TC 302 • 3 credits

##### Elementary Dyeing

This course consists of a study of the preparation of textile fibers for dyeing and the application of the various classes of dyestuffs to textile fibers.

#### TC 303 • 3 credits

##### The Art of Dyeing with Natural Dyes

The natural dyes used by our ancestors are discussed. Methods relating to the extraction and preparation of the dyes from woods, bark and insects are studied. Laboratory work consists of the preparation of the dye-baths and the actual application of the dyes to fabrics. Logwood, cochineal, madder, fustic, indigo, quercitron, osage orange and hypernic are some of the dyes utilized. Cannot be used to satisfy requirements for students in the Dyeing and Finishing option.

#### TC 325 • 3 credits

##### Textile Chemistry I

This is an Introductory course in the organic chemistry of textile fibers, polymers, dyestuffs, surfactants, bleaching, and other organic chemicals used in the textile industry. Prerequisites: CH 101, 102.

#### TC 326 • 3 credits

##### Textile Chemistry II

An introduction to the fundamental chemistry and principles of dyeing, printing and finishing. All phases of textile wet processing will be covered in order to provide a basic understanding of these various phases of textiles. A continuation of TC 325.

#### TC 401 • 3 credits

##### Advanced Dyeing

Studies are conducted on the application of dyestuffs to synthetic fibers and mixed fiber combinations. Color matching and experimental dyeing on pilot plant equipment are included. Prerequisite: TC 302.

#### TC 402 • 3 credits

##### Advanced Dyeing

This course is a continuation of TC 401. Prerequisite: TC 401.

#### TC 410 • 3 credits

##### Polymer Chemistry

The physical and organic chemistry of monomers and polymers, including a consideration of non-bonding forces, spectroscopic methods of structure determination, structure and property correlations, fractionation, thermodynamics, and methods of molecular weight determination for polymers in solution; the kinetics of condensation and addition polymerization as applied to polymers and copolymers, mechanism of free radical and ionic polymerization, stereo-specific polymers, the chemistry of the more common polymers systems, and preparation of their corresponding monomers.

Prerequisites: CH 115, 116.

**TC 411 • 3 credits**  
**Textile Printing**

This course covers methods of printing and the preparation of printing pastes. Direct, discharge and resist printing methods are included.

Prerequisites: TC 302, 325.

**TC 421, 422 • 3 credits**  
**Chemical Technology of Finishing I, II**

The application of the various classes of textile finishes to fabrics are studied. Attention is centered on the standard finishes used in modern practice.

Prerequisite: TC 302, 325.

**TC 431 • 3 credits**  
**Industrial Chemical Analysis I**  
This course is devoted to the chemistry of products associated with the textile industry. Methods of analysis of the A.A.T.C.C. and A.S.T.M. and other specialized procedures are followed. The testing of dyestuffs and fabric blends is included.

**TC 442 • 3 credits**  
**Chemistry of Fibers**

The chemistry of natural and synthetic fibers. Studies are made concerning the relationship between the chemical structure and physical properties of fibers.

Prerequisite: CH 251, 252, 265, 266, TC 325.

**TC 462 • 3 credits**  
**Survey of Man-Made Fibers**

This course is designed to familiarize the student with the physical and chemical properties of the man-made fibers. Coverage includes a survey of the various manufacturing processes and the utilization of these newer synthetics in the production of fabrics.

**TC 485 • 3 or 6 credits**  
**Introduction to Research**

Textile Chemistry students accepted for study by a faculty research advisor will be assigned a topic for investigation. It is the aim of this course to introduce the student to research and develop his proficiency in the analysis, solution and presentation of his investigating work.

Prerequisite: Senior standing.

**TC 500 • 10 credits**  
**Thesis**

An original research project related to the areas of chemistry, textile chemistry or dyeing is required.

Approval of the completed project must be obtained from the director of the thesis, the departmental chairman and the director of graduate studies. Three typewritten copies of the thesis must be submitted in final form before the degree is awarded.

**TC 501 • 4 credits**  
**Chemistry of Dyestuffs**

This course deals with the chemistry and technology of dyestuffs. The raw materials, intermediates and finished dyestuffs are studied in detail. The effect of the construction on color and fastness properties is emphasized. Theoretical as well as practical and economic points of view are presented. The preparation of typical intermediates and dyestuffs is carried out in the laboratory.

**TC 502 • 3 credits**  
**Physical Chemistry of Dyeing**

This is a lecture course concerned with the physicochemical theories of the application of dyestuffs to

textile and related materials, including the thermodynamics and kinetic principles involved.

**TC 503 • 3 credits**  
**Physical Chemistry of Surface-Active Agents**

This lecture course is concerned with the physicochemical principles involved in surface-active agents. The chemical nature of the agents is studied and related to their properties. The technical uses are evaluated on this basis.

**TC 505 • 3 credits**  
**Processing of Synthetic Fibers**

This course is concerned with advanced dyeing and finishing methods of polyester, polyamide, acrylic, acetate and viscose fibers, separate and blended in combination with other fibers. Bleaching formulations, color matching and shade-fastness are studied.

**TC 506 • 3 credits**  
**Survey of Current Textiles**

Studies in this course include a survey of the fundamental reference works and literature of textile chemistry. Timely reports are required concerning recent advances in the manufacture, modification, dyeing and finishing of synthetic and blends.

**TC 507 • 3 credits**  
**Textile Microscopy and Photomicrography**

Instruction and problems in this course include the use of the optical microscope in relation to fiber identification and structure, composition of blends, physical, chemical, and biological condition of yarns and fabrics. Recording of data by photomicrography is included.

Prerequisite: TT 462.

**TC 508 • 3 credits**  
**Textile Printing Advanced**

The more complex styles of printing, discharge and resist, are covered in detail. The preparation of white and colored print paste for all classes of dyed backgrounds is investigated. Attention is given in dyeing ground shades for discharge printing. Special effects such as Plisse, Burn-out and Vigoreaux styles are considered.

Prerequisite: TC 411.

**TC 509 • 3 credits**  
**Chemical Technology of Finishing**

This course is more comprehensive than that given in the undergraduate course. Greater detail is provided concerning the mechanisms used in the application of specialized finishes and the chemical reactions involved.

**TC 510 • 3 credits**  
**Polymer Chemistry**

The physical and organic chemistry of monomers and polymers, including a consideration of non-bonding forces, spectroscopic methods of structure determination, structure and property correlations, fractionation, thermodynamics, and methods of molecular weight determination for polymers in solution; the kinetics of condensation and addition polymerization as applied to polymers and copolymers, mechanism of free radical and ionic polymerization, stereo-specific polymers, the chemistry of the more common polymers systems, and preparation of their corresponding monomers.



## Textile Technology Courses

### **TT 103 • 3 credits**

#### **Textile Orientation**

This course is designed to cover basic theory in textile science, describe the activities of the industry as it may relate to job placement, and designed to give exposure to all areas of advanced study within the Textile Technology Program.

### **TT 105 • 3 credits**

#### **Fundamentals of Textiles**

This course has been designed to broaden the student's understanding of textiles and afford the individual a workable knowledge as a consumer of textile products.

Emphasis is placed on the fundamentals of fibers, yarns, and fabrics, their properties, usage, quality aspects, and relationship to the finished product. The manufacturing processes are considered only to the degree necessary for the student to better compare and comprehend the textile products discussed. Federal legislation, as it pertains to textiles, will also be given emphasis in order to fulfill the aims of the course. Prerequisite: None. It is open to all University students with exception of Textile Technology and Textile Design majors.

### **TT 201-202 • 3 credits**

#### **Yarn Technology**

Consideration is given to a fundamental understanding of the cotton fiber, its growth, classification, and other essential material. The course then introduces the student to the theoretical and technological concepts of processing on the cotton system, with emphasis on the initial operations during the first semester.

A continuation into similar concepts employed during the remaining operations of yarn processing is emphasized during the second semester.

Historical basis for processing changes and modernization is also considered.

Prerequisites: For TT 201—TT 104 or consent of Instructor, PH 111, 112, 121, 122. For TT 202—TT 201.

### **TT 211 • 3 credits**

#### **Fabric Technology I**

This course consists of a study of the fundamentals and principles of materials preparation prior to weaving. The various methods and equipment involved in the winding, warping and slashing processes are discussed along with problems which may arise concerning the processes.

### **TT 212 • 3 credits**

#### **Fabric Technology II**

This course is a continuation of TT 211 and involves the fundamentals and principles of the mechanisms related to the fabrication of materials by the process of weaving. Basic cam systems, dobby mechanism and semi-automatic motions are discussed and observed in operation. Prerequisite: TT 211.

### **TT 221 • 3 credits**

#### **Fabric Design I**

A study is made of the fundamental principles of fabric construction and weave formation of basic and staple fabrics. Instruction is given in the physical analysis and design techniques essential to the reproduction and creation of woven fabrics. Prerequisite: TT 104 or consent of instructor.

### **TT 222 • 3 credits**

#### **Fabric Design II**

A continuation of TT 221.

### **TT 225 • 3 credits**

#### **Design and Structure I**

This is a course in the technical procedures which apply to weave formation and fabric construction including a survey of all significant terms pertaining to the area of study. For Textile Design students.

### **TT 226 • 3 credits**

#### **Design and Structure II**

Continuation of TT 225.

### **TT 231 • 3 credits**

#### **Knitting Technology I**

A basic study is made of the principles of mechanisms related to the fabrication of materials by the process of knitting. Machine and motion capabilities and applicable mathematics are studied. The analysis and creation of fabric designs and patterns are also considered.

### **TT 232 • 3 credits**

#### **Knitting Technology II**

A continuation of TT 231.

### **TT 301 • 3 credits**

#### **Yarn Technology III**

Discussions of the stress-strain and recovery properties of fibers and their relation to processing and product characteristics. Blends, blend systems, and the processing of blend and 100% synthetic staple material into yarns is also emphasized. Other selected topics will also be considered. Prerequisite: TT 201, 202; TC 462.

### **TT 302 • 3 credits**

#### **Yarn Technology IV**

Discussions on the theories and processing procedures for the manufacturing of such

yarns as textured, stretch and high-bulk. Student presentation of assigned topics concerning trends and the latest developments in fibers, yarns, and processing. Written papers on appropriate topics will be assigned. Prerequisite: TT 301.

### **TT 311 • 3 credits**

#### **Fabric Technology III**

Comprehensive studies are made of more complicated mechanisms related to various types of weaving equipment. The design, applicable calculations, capabilities, timing, and settings on the multiple mechanical devices are explored and studied. Prerequisite: TT 212.

### **TT 312 • 3 credits**

#### **Fabric Technology IV**

A continuation of TT 311.

### **TT 319 • 3 credits**

#### **Synthetic Fiber Processes**

This course is concerned with the synthesis of polymeric materials and their extrusion into films and fibers. Manufacture of the major synthetic fibers, namely polyamide, polyester, acrylics and polypropylene is discussed in depth. Newer fibers such as those derived from aromatic polyamides are also covered. This course also deals with the relative merits of the various fibers in terms of economics and performance.

### **TT 321 • 3 credits**

#### **Fabric Structure**

A continuation of TT 221-222. More complex fabric constructions and patterns are pursued including technology related to and required for the reproduction and creation of fabrics in the areas of multiple yarn system and



three dimensional characteristics and properties. Associated yarn and fabric mathematics are also included.  
Prerequisite: TT 222.

**TT 322 • 3 credits**  
**Fabric Structure**  
This is a course for students in the Dyeing and Finishing Minor. It covers topics such as the construction of fabrics and theory of fabric properties influenced by dyeing and finishing techniques. An emphasis is placed upon the analysis of fabric defects and defect evaluation programs currently applied in the industry.  
Prerequisite: TT 222, 211, 201, 104.

**TT 331 • 3 credits**  
**Textile Technology**  
This is a course for Textile Design students covering the theory of procedures employed in the processing of raw materials into yarns, including natural and manufactured types of fibers.

**TT 332 • 3 credits**  
**Textile Technology**  
This is a course in the theory of material fabrication, covering principally the weaving process in its variations and capabilities as related to the application of fabric design. For students majoring in Textile Design.

**TT 341 • 3 credits**  
**Design and Structure III**  
This is an extension of TT 225-226 covering more complex fabric patterns and construction. It includes the analysis, reproduction, and creation of multiple-yarn, three-dimensional, and Jacquard type fabrics.  
For Textile Design students.

**TT 342 • 3 credits**  
**Design and Structure IV**  
A continuation of TT 341.  
Prerequisite: TT 341.

**TT 352 • 3 credits**  
**Seminar**  
Students will write and present papers or aspects of a subject chosen for the semester.  
Prerequisite: Permission of Instructor.

**TT 405 • 3 credits**  
**Textile Merchandising and Marketing**  
The lectures cover case histories and general discussions of the following subjects: the marketing of textile fibers; yarns; cloth; the influence of style and fashions on textile industry products; also price policies and other problems common to the textile industry.

**TT 411-2 • 3 credits**  
**Statistical Methods and Quality Control**  
A study of the statistical methods used in the textile industry to analyze test data, design experiments, improve control quality, and study process capability.

**TT 421 • 3 credits**  
**Design and Structure**  
Design principles and techniques are applied to the reproduction and creation of Jacquard-type fabrics. This includes the development of the pattern sketch and painted design and the transfer of same for technical application in fabric formation. A study of novelty and textured yarns is included.  
Prerequisite: TT 321 or TT 322.

**TT 431 • 3 credits**  
**Physical Testing**  
College level material is introduced to the students to enlighten textile science majors as to standard physical examinations of fibers, yarn, and fabrics for research and quality control purposes.

Physical Testing concepts and testing equipment will be discussed and operated in the coordinated laboratory to examine more important and common testing methods for quality acceptance of textile materials.  
Prerequisite: TT 104, 201, 211, 221.

**TT 452 • 3 credits**  
**Quality Control**  
Studies are made of industrial quality control by statistical methods as applied to manufacturing processes. The methods of data analysis, inspection methods, determination of sample size, and the construction of control charts are investigated.  
Prerequisite: TT 431.

**TT 462 • 3 credits**  
**Microscopy**  
Instruction is given in using the optical microscopy in relation to fiber identification and structure, composition of blends, physical, chemical, and biological condition of fibers and yarns. Students are taught the application of micrometers for length, diameter, and area measurements which is a prerequisite for recording of data by photomicrography.

**TT 470 • 3 credits**  
**Advanced Knitting Technology**  
This course consists of a study of knit fabrics made on Raschel and Warp knitting

machines, together with the creation of new designs and the formation of many types of webbing by the utilization of various types of yarns. Charts are made of the sample to indicate the variances in fabric reactions from fine gauge knit lace to course webbings. Finishing requirements of these particular fabrics are studied.

**TT 472 • 3 credits**  
**Fiber Technology**  
The subject matter of this course covers the origin, history and physical properties of all fibers both natural and synthetic. In addition, the manufacture of and the use in textiles of the synthetic fiber is discussed in detail.

**TT 473 • 3 credits**  
**Nonwoven Fabric Technology**  
This is a course which involves the study of unconventional methods of fabric production. Theory and practicality are to be dealt with in the areas of nonwoven processing using chemical and mechanical means, tufting, bonding and lamination of composite fabrics. Emphasis will be placed on fiber and machinery selection.  
Prerequisite: TT 104, 211, 201, 221.

**TT 481 • 3 credits**  
**Plant Engineering**  
General consideration is given to the design of a new textile mill; multi-story vs. single-story; problems in construction; slow-burning vs. fire-proof, windowless construction, flow diagrams, requisite applied engineering mathematics will be intensively pursued.

**TT 482 • 3 credits****Fabric Research Development and Design**

This course correlates properties of textile materials, engineering principles in textile processing, and the design of fabric structures with the desired properties for a particular functional use which would relate to stress-strain, dimensional stability, and other characteristics pertaining to the behavior of the finished product.

**TT 485 • 3 or 6 credits**  
**Introduction to Research**

Students accepted for study by a faculty research advisor shall be assigned a topic for investigation. It is the aim of this course to introduce the student to research and develop his proficiency in the solution, analysis, and presentation of his investigating work. A maximum of 6 credits can be obtained. Prerequisite: Senior standing.

**TT 486 • 3 or 6 credits**  
**Introduction to Research**

A continuation of TT 485.

**TT 492 • 3 credits****Textile Cost Accounting**

This course analyzes the principles and problems basic to textile costing; basic cost concepts; cost problems; materials, labor and manufacturing costs; textile fiber and supplies purchasing; spinning mill costs; weaving mill costs; finishing mill cost problems, textile marketing costs; financial statements.

**TT 500 • 8 credits****Thesis**

The thesis requirement may be fulfilled in the textile sciences or may be of an interdisciplinary nature; in the latter instance, however, the emphasis must be on some aspect of textile science.

It is expected that those students with an appropriate undergraduate degree in textiles, will undertake a thesis project which will demonstrate ability and proficiency in the solution, analysis, and presentation of an original research topic.

Students with an undergraduate specialty in an area other than textiles have the opportunity to couple this knowledge with textiles in either a scientific, theoretical or a more applied project approach to fulfilling the thesis requirement.

Thesis will be conducted under the supervision of a faculty advisor. An oral examination, in defense of the thesis, will be required. Prerequisite: advanced graduate standing.

**TT 501 • 3 credits**  
**Yarn Technology**

This course is concerned with the aspects of yarn processing which affect the properties of the product during the various stages of manufacturing. Students will be required to exhaust reference material as a preliminary to the completion of written reports on subject matter assigned. In an endeavor to familiarize the student with research procedures and the evaluation of results, actual project reports will be studied.

**TT 502 • 3 credits**  
**Yarn Technology**

A continuation of TT 501.

**TT 503 • 1 credit**  
**Research Techniques**

A course designed to aid the student in better understanding research approach and techniques. To develop

an insight as to the evaluation of research results. A proposal on an original research topic must be submitted and approved. Prerequisite: advanced graduate standing.

**TT 504 • 3 credits**  
**Graduate Seminar**

Student discussions on selected topics will be carried out under the supervision of a faculty member. Written papers to be submitted on those topics assigned. Prerequisite: graduate standing.

**TT 506 • 3 credits**  
**Independent Study**

Individual study under the supervision of a faculty member in an area of textiles not otherwise a part of the course offerings. Students shall be held responsible for meeting the requirements of independent study as outlined in an approved proposal. Prerequisite: graduate standing.

**TT 508 • 3 credits**  
**Design and Analysis of Experiments**

A study of the statistical methods and systems employed in the design of experiments, the testing of materials, and the evaluation of test data. Prerequisite: TT 411-412.

**TT 511 • 3 credits**  
**Fabric Technology**

This course covers an investigation in advanced styling and the development of methods of textile fabrication. Requirements of modification and the introduction of new procedures are studied pertaining to new design in fabric construction for improved performance and

specific uses. Extensive research of reference material is conducted with written reports submitted on assigned related subject matter.

**TT 512 • 3 credits**  
**Fabric Technology**

A continuation of TT 511.

**TT 521 • 3 credits**  
**Statistical Methods of Quality Control**

This course consists of a study of methods and systems by the use of statistical analysis in the design of experiments in the testing of materials and in the evaluation of test data as applied in the interest of improvement and control of quality, as well as studies of processing efficiency.

**TT 522 • 3 credits**  
**Statistical Methods and Quality Control**

A continuation of TT 521.

**TT 563 • 3 credits**  
**Fiber Structure**

The molecular structure and arrangements of molecules in fibers are considered with respect to giving a foundation to the understanding of the physical and mechanical properties and behavior of textile raw materials. The properties are examined from a fundamental viewpoint so that a sound approach to the technological utilization of fibers in textiles can be established. An introduction is made to the interrelation between fiber properties and yarn and fabric geometry in determining the behavior of textiles.

**TT 531 • 3 credits**  
**Knit Technology**

Advanced processing in all types of knit fabric formation. 163



# College of Engineering

The College of Engineering offers programs leading to the B.S. degree in five engineering fields and in two specialties of engineering technology. In conjunction with the College of Arts and Sciences, it also offers a B.S. in Computer Science. All these programs build on a foundation of basic sciences, humanities and social sciences, mathematics, and engineering science to pro-

vide in the final years an experience in design so important in the problem-solving expected in the technological professions. Because these professions must respond to frequent new technological developments, the academic programs are continually revised to keep them up-to-date.

While the programs of the College of Engineering have

common elements, each represents a different career objective, as indicated in the following descriptions of programs. Students undecided about a major within these technological programs may postpone a decision until the end of the first year of study. Students with questions about career choice are invited to consult with the Dean of Engineering.

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## Humanities and Social Sciences Requirements for Engineering and Engineering Technology Programs

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The College of Engineering requires that all students complete 18 credits of humanities and social sciences in addition to English 101 and 102. Of these six courses, two must be from a single field in the humanities and two must be from a single field in the social sciences. None of the courses may be taken on a Pass/Fail basis. Acceptable courses in the humanities include all courses in:

- Art History (except studio courses)
- English (literature courses only)
- Foreign Literature, except first year language
- History
- Music History and Theory (except applied music)
- Philosophy

Acceptable courses in the social sciences include:

- Economics (except EC 280, 332)

History  
Political Science  
Psychology (except PY 205, 310)  
Sociology and Anthropology

Five of the six courses *must* be in the fields listed above. The sixth course may, with prior permission of the student's department chairman and the Dean of Engineering, be in other non-technical courses within the University, such as business, education, nursing, or the non-technical courses excluded above.

A student may select free electives, as required by the curriculum, without regard to the restrictions imposed above for the humanities or social sciences.



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## Engineering Courses for All SMU Students

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The following courses are offered by the College of Engineering as interdisciplinary courses or as courses to satisfy distribution and science requirements.

### I 100 • 3 credits

#### **The Technical Nature of Man's Environment**

A combination of three separate five week mini-courses, primarily for non-engineers, designed to develop an understanding of the technical nature of man's structures; his transportation systems; and his environmental systems.  
3 hrs. lecture

### I 101 • 3 credits

#### **Man — Structural and Environmental Problems**

This is the first course in the two-course sequence offered by the Civil Engineering Department in a combination of two separate seven week mini-courses, primarily for non-engineers, designed to develop an understanding of the technical nature of man's structural problems and his environmental problems.  
3 hrs. lecture

### I 102 • 3 credits

#### **Man — Transportation and Construction Problems**

This is a second course in the two-course sequence offered by the Civil Engineering Department in combination of two separate seven week mini-courses, primarily for non-engineers designed to develop an understanding of the technical nature of man's transportation, its construction techniques and problems including surveying techniques.  
3 hrs. lecture

### I 300 • 3 credits

#### **Introduction to Computer Graphics**

The course acquaints students with the use of computer graphics software and facilities for graphical display and with computer graphics as a tool for computer-aided design and analysis in various applications. Discussion includes point-plotting techniques, line-drawing displays, use of a simple graphics package, geometric modeling, picture structure, and display of solid objects. 3 hrs. lecture  
Prerequisite: CS 161, CS 261, or equivalent.

### I 401 • 3 credits

#### **Technological Society Year 2000 Analysis**

Interdisciplinary study of several technologies (transportation, education, energy, etc.) and of their impact upon the individual and society today and tomorrow. Evaluation of current technological status, its trend, individual valuations of its possible changes. Design of desirable technologies and how to achieve them.  
3 hrs. lecture

### I 403 • 3 credits

#### **World Geology**

World Geology is a first course in geological science presenting concepts based upon the recent discoveries that opened up new approaches to age-old mysteries and is now the plate tectonics, continental drift and spreading sea floor theories of the "new" geology. The study of the ocean, the sea floor and coastlines plays an important part in the course. The nature and properties of the

materials composing the earth, their distribution and the processes by which they are formed, altered, transported and distorted are covered.

3 hrs. lecture

### I 411/412 • 3 credits

#### **Technological Society Year 2000 Analysis/Synthesis**

Interdisciplinary study of several technologies (transportation, education, energy, etc.) and of their impact upon the individual and society today and tomorrow. Evaluation of current technological status, its trend, individual valuations of its possible changes. Design of desirable technologies and how to achieve them.  
3 hrs. lecture

### I 493 • 3 credits

#### **Aesthetics - Man's Structures**

This course is intended for civil engineers (all specialties), with little or no formal training in aesthetics and visual design. Emphasis will be placed upon building a firm foundation upon which an aesthetic sensitivity can be developed by the student. In addition, each student will have the opportunity to attempt some visual design of his own.  
3 hrs. lecture

# Division of Engineering

Every student seeking the degree of Bachelor of Science in Engineering is required to take a common core program which is offered essentially in the first four semesters of study. This core program provides the student with a solid foundation in mathematics and the basic chemical, physical, and engineering sciences. The student then has a choice of six Bachelor of Science degree programs.

The programs in Civil, Computer, Construction, Electrical, and Mechanical Engineering have a common first year so that a student need not make a final choice among these fields until the beginning of specialization in the second year.

While the first year of the program in Computer Sciences differs slightly from that for engineering, it is possible to transfer between Computer Engineering and Computer Science in the first two years with no loss of time.

The various curricula in the Division of Engineering specify a number of elective courses. Elective courses fall into two categories: technical electives and free electives. Each student is allowed to select 6 credits as free electives chosen from the course offerings of any College at SMU, provided concepts which are new to the student form a substantial part of the course.

The technical electives are usually chosen from the courses offered in the student's major department. Other courses in the areas of mathematics, science or engineering may also qualify as technical electives subject to approval by the student's major department. The student, in consultation with the faculty advisor, is expected to develop a definite program which meets the student's desires and is approved by the department chairman. The proper choice of the technical electives allows the student to prepare for his future professional activity, whether it be to take a position in industry, continue in engineering or science graduate studies or in a field other than science or engineering.

## Engineering Core Courses

**EN 161 • 3 credits**  
**Engineering Design Graphics**  
This introductory course has a threefold objective: (1) to develop an awareness of the history and current status of the profession of engineering; (2) to impart the concepts associated with the design process, including the enhancement of creativity; (3) to develop graphic skills for the communication of ideas from the designer to the fabricator.  
2 hrs. lecture; 3 laboratory hrs.

**EN 201 • 3 credits**  
**Elements of Electrical Engineering I**  
This course introduces the student to the basic theory and techniques of circuit analysis and electro-mechanical energy conversion. Topics include AC and DC circuits, magnetic circuits

and the natural response of electrical and mechanical elements. Electric motors and generators are also discussed and analyzed.  
3 hrs. lecture  
Prerequisite: MA 112.

**EN 221 - ½ credit**  
**Materials Science Laboratory**  
The students study the properties of materials in a series of experiments designed to supplement the course material in Materials Science (EN 231).  
3 hrs. laboratory  
EN 231 must be taken concurrently.

**EN 231 • 3 credits**  
**Materials Science**  
A fundamental treatment of engineering materials. Properties are discussed on the basis of material structure. Metallic, organic and ceramic materials are com-

pared and applications are presented. Phases and phase relationships in binary systems are introduced. Solid state reactions and modifications of properties through change in micro-structure are studied. Stability of materials in service environments is analyzed on the basis of material structure.  
3 hrs. lecture  
Prerequisite: CH 152.

**EN 232 • 3 credits**  
**Engineering Thermodynamics I**  
The fundamental concepts and basic principles of classical thermodynamics are established. The Zeroth, First and Second laws of thermodynamics are formulated with recourse to empirical observations and then expressed in precise mathematical language. These laws are

applied to a wide range of engineering problems. The properties of pure substances are described using equations of state and surfaces of state. Reversible processes in gases are analyzed by means of the First and Second laws. A representative sampling of engineering applications is discussed and analyzed.  
3 hrs. lecture  
Prerequisite: CH 152, MA 211 concurrently.

**EN 241 • 3 credits**  
**Engineering Mechanics I - Statics**

An introduction to the science of mechanics and its applications to problems in engineering. Vectors, dimensional analysis, and matrix algebra are included, along with statics of particles, friction, systems of forces, equilibrium of rigid bodies, and analysis of structures.  
Prerequisites: PH 112, MA 112.

**EN 242 • 3 credits**  
**Engineering Mechanics II - Dynamics**

A continuation of the study of mechanics initiated in EN 241. Work and kinetic energy methods are emphasized. Motion in accelerating coordinate systems and dynamics of a system of particles lead to the discussion of rigid body dynamics in three dimensions. A number of examples of rigid body motion are discussed. Free and forced vibrations of one degree of freedom, and free vibrations of multi-degree of freedom systems are studied. The principle of virtual work is introduced and used to briefly discuss stability of equilibrium.  
Lecture 3 hours.  
Prerequisites: PH 112, EN 241, MA 211.  
Corequisite: MA 212.

**EN 251 • 1 credit**  
**Principles of Measurements**  
This course provides an introduction to those thought processes that are fundamental to experimental work in all areas of engineering. Topics include the purpose and mechanics of measurements as well as the organization and reporting of data. Also discussed is the statistical analysis of data and the evaluation of measurement errors.  
Lecture/Laboratory 2 hrs.

**EN 301 • 3 credits**  
**Applied Engineering Mathematics**  
A study of mathematical methods useful to the engineer, including matrix algebra, vector calculus, functions of complex variables, and partial differential equations.  
3 hrs. lecture  
Prerequisite: MA 212.



# Civil Engineering

## Faculty and Fields of Interest

**Siegfried M. Breunig** • transportation, interdisciplinary studies

**Allan L. Campbell** • civil engineering

**Thomas P. Jacklivicz (chairperson)** • environmental specialty

**Madhusudan Jhaveri** • soil, structures

**Sat Dev Khanna** • hydraulics, hydrology, hydrogeology, environmental impact statement, water resources

**Frederick M. Law** • structural engineering

**Walter J. McCarthy** • construction engineering

**George Thomas** • surveying

Civil Engineering is the engineering of constructed facilities, of bridges and buildings and tunnels and dams; of harbors and airports; of waterways and railways and highways; of water power and irrigation and drainage and water supply; of sewage and waste disposal and environmental health systems. Civil Engineers are the professionals who plan, design and construct these facilities.

The academic preparation for a profession which is so varied requires considerable breadth as well as depth. The Civil Engineering curriculum at SMU is designed to provide this breadth and depth first by preparing the student with a thorough grounding in mathematics, the basic sciences and the engineering sciences; next by providing a broad background in the basic Civil Engineering

specialties; and finally, by offering the student the opportunity to gain some depth of understanding in the specialty of the student's choice by means of a sequence of electives in Environmental and Water Resources Engineering, Structural Engineering, and Transportation Engineering. To better prepare the student to take his place as a citizen as well as a professional, the curriculum is also designed to include a number of courses in the humanities and social sciences.

Early association with the Civil Engineering profession is encouraged by providing opportunities for the student to participate in field trips to facilities under construction and to participate in activities of the Student Chapter of the American Society of Civil Engineers.

The Civil Engineering degree program is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

## Requirements

### First Year

ENG 101	102	Freshman English I, II
CH 151	152	Principles of Modern Chemistry I, II
CH 161	162	Introductory Chemistry Lab/Engineer I, II
MA 111	112	Analytic Geometry and Calculus I, II
PH 111	112	Physics I, II
PH 121	122	Physics Lab I, II
EN 161		Engineering Design Graphics*
CS 261		Introductory Computer Programming*

### Semester Credits: First Second

3	3
3	3
1	1
4	4
3	3
1	1
	3
3	
<b>18</b>	<b>18</b>

Second Year			Semester Credits:	First	Second
EN 201		Elements of Electrical Engineering I		3	
EN 241	242	Engineering Mechanics I, II		3	3
EN 231		Material Science		3	
EN 221		Material Science Lab		½	
MA 212		Differential Equations			3
PH 211		Physics III		3	
PH 221		Physics III Lab			1
		Humanities/Social Science Electives		3	3
MA 211		Analytic Geometry and Calculus III		4	
EN 232		Engineering Thermodynamics I			3
CE 302		Mechanics of Materials			3
CE 312		Mechanics of Materials Lab			½
				19½	16½
Third Year			Semester Credits:	First	Second
CE 201		Surveying		3	
CE 211		Surveying Laboratory		1	
CE 303		Fluid Mechanics		3	
CE 313		Fluid Mechanics Lab			1
CE 307		Structural Theory		3	
CE 309		Introduction to Transportation		3	
CE 304		Sanitary and Environmental Engineering			3
CE 314		Sanitary and Environmental Engineering Lab			1
CE 308		Structural Engineering			3
		Technical Electives			6
		Humanities/Social Science Electives		3	3
				16	17
Fourth Year			Semester Credits:	First	Second
CE 403		Soil Mechanics		3	
CE 413		Soil Mechanics Lab		1	
CE 402		Engineering Economy			3
CE 252		Ethics, Technical Report Writing and Professionalism			1
		Technical Electives		6	6
		Free Electives**		3	3
		Humanities/Social Science Electives		3	3
				16	16

Total Credits: 137

\*Both EN 161 and CS 261 are offered each semester. Roughly half of freshman class will enroll in each.

\*\*One of the free electives has to be an advanced math course with engineering applications, preferably EN 301 - Applied Engineering Math.

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### Technical Electives

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These technical electives are also available to Construction Engineering students with prior approval.

CE 305	Earth and Marine Geology
CE 311	Hydraulics Engineering
CE 321	Structural Analysis
CE 331	Transportation Planning
CE 411	Water Quality Engineering
CE 412	Pollution Control of Wastes
CE 421	Matrix Methods of Structural Analysis
CE 422	Design of Structural Systems
CE 423	Design of Foundations and Earth Structures
CE 431	Highway Engineering
CE 434	Traffic Engineering
CE 443	Engineering Hydrology
CE 491	Civil Engineering Project
CE 495	Introduction to Construction Engineering
CE 499	Computer Applications in Civil Engineering

NOTE: Students should confer with advisors before selecting technical electives to assure that they meet requirements in engineering science and engineering design. Additional technical electives offered in other departments are available to C.E. students with the prior approval from C.E. Department Chairman.

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### Free Electives

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Free Electives can be chosen by the student through the offerings at SMU. The following Free Electives are offered by the Civil Engineering Department:

I 100	The Technical Nature of Man's Environment
I 101	Man — Transportation and Environmental Problems
I 102	Man — Structures and Construction Problems
I 493	Aesthetics — Man's Structures
I 411	Technological Society Year 2000 (Analysis)
I 412	Technological Society Year 2000 (Synthesis)

Note: I 100 is not available to Civil Engineering and Construction Engineering students.

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### Civil Engineering Courses

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#### CE 201 • 3 credits

##### Surveying

A study of the theory and practice of plane surveying as applied to property topographic and engineering surveys including curves, error theory and earth-work as related to civil engineering projects.

3 hrs. lecture

#### CE 211 • 1 credit

##### Surveying Laboratory

Consists of field practice to understand and supplement the CE 201 course contents.

3 hrs. laboratory

Prerequisite: CE 201 (concurrent)

#### CE 252 • 1 credit

##### Ethics, Technical Report Writing, and Professionalism

Consists of training the student in technical report writing, making him familiar with the ethics and professionalism in the field of Civil Engineering practice.

1 hr. lecture



**CE 302 • 3 credits****Mechanics of Materials**

The behavior of materials and members under axial load, torsion, flexure, shear and combined loads is studied including the deflection of beams and buckling of columns. The relationship between stress and strain, principal stresses and strains and yield and fracture criteria are discussed.

3 hrs. lecture

Prerequisite: EN 241.

**CE 303 • 3 credits****Fluid Mechanics**

The course encompasses the basic concepts in the mechanics of fluids, fluid properties, fluid statics. Kinematics and dynamics of flow fields are developed. Dimensional analysis, metering, laminar and turbulent flows will also be discussed. Emphasis is placed on energy equations with applications to closed conduit and open channel flow problems. Boundary layer concepts and drag and lift forces on submerged bodies are also considered.

3 hrs. lecture

Prerequisite: EN 242

**CE 304 • 3 credits****Sanitary and Environmental Engineering**

This is an introductory course to the sanitary engineering field. The environmental problems of urbanization and the natural cycle of water are discussed. Elementary hydrology, physical, chemical and biological principles of the treatment of water, sewage and industrial wastes are covered. Municipal services — water mains,

sanitary sewers and storm water drainage, layout and operation of purification and treatment works are dealt with in detail. In addition, state and federal regulatory standards are introduced and discussed.

3 hrs. lecture

Prerequisite: CE 303, CH 152.

**CE 307 • 3 credits****Structural Theory**

The methods of structural analysis and design of reinforced concrete beams, columns, frames, and one-and two-way slabs using both the elastic and ultimate strength theories are formulated and discussed. Emphasis is placed on giving the student an understanding of the general behavior of statically indeterminate structures as well as the specific behavior of reinforced concrete members.

3 hrs. lecture

Prerequisite: CE 302.

**CE 308 • 3 credits****Structural Engineering**

The field of structural engineering is introduced through a study of the methods of structural analysis and design of steel structures based on both the elastic and plastic theories. Emphasis is placed on giving the student an understanding of the general behavior of all structures as well as the specific behavior of structural steel members.

3 hrs. lecture

Prerequisite: CE 307.

**CE 309 • 3 credits****Introduction to Transportation**

The course presents all pertinent characteristics of transportation in a compre-

hensive overview. The mobility needs of man, their measurement and planning utility are discussed. A human decision model is developed; the physical constraints on transportation are developed; human, technological and economic criteria for transportation systems are developed, and then compared to the existing transportation systems. A discussion of crucial economic principles leads to concepts of planning.

3 hrs. lecture

**CE 311 • 3 credits****Hydraulic Engineering**

Hydraulic Engineering topics such as reservoirs, open channels, pipe grids, energy dissipators and pumps are studied. The function and design of hydraulic structures such as dams and spillways are studied. Topics also include ground water, site drainage, sediment and basin designs.

3 hrs. lecture

Prerequisite: CE 303.

**CE 312 • ½ credit****Mechanics of Materials Laboratory**

A series of laboratory experiments are conducted to investigate the physical characteristics of materials and to verify the assumptions made in the course Mechanics of Materials (CE 302) or Strength of Materials (CT 311).

Prerequisite: CE 302 (concurrent).

**CE 313 • 1 credit****Fluid Mechanics Laboratory**

A series of laboratory experiments aimed at supplementing the theory course CE 303 Fluid Mechanics with the objective of initiating the student into the field of fluid observations and experimen-

tation.

3 hrs. laboratory

Prerequisite: CE 303 (concurrent).

**CE 314 • 1 credit****Sanitary and Environmental Engineering Laboratory**

A series of laboratory experiments aimed at supplementing the theory course CE 304 by actual lab experiments in testing of water and wastes.

3 hrs. laboratory

Prerequisite: CE 304 (concurrent).

**CE 321 • 3 credits****Structural Analysis**

The structural analysis of statically indeterminate structures is studied. Using the methods of determining deflections developed in Structural Theory, the superposition methods are considered next with the latter method used as an introduction to matrix methods of structural analysis.

3 hrs. lecture

Prerequisite: CE 307.

**CE 402 • 3 credits****Engineering Economy**

A study of the principles involved in the analysis of proposed investment in capital assets for decision making. Emphasis is placed on techniques for economy studies of multiple alternatives, uncertainties in forecasts, increment costs, retirement and replacement. Enrollment is normally limited to engineering seniors.

3 hrs. lecture

Prerequisite: MA 112 or MA 106.

**CE 403 • 3 credits****Soil Mechanics**

A study of the physical and mechanical properties of soil 171 types including weight,

volume relationship, permeability and drainage characteristics, effective stresses, and soil sampling are also discussed in detail. Engineering aspects of geology are also discussed. 3 hrs. lecture  
Prerequisite: CE 302 and CE 303.

**CE 411 • 3 credits**  
**Water Quality Engineering**  
The design of source of supply of water and the distribution systems to water are studied. Chemical, physical and biological processes related to water are emphasized. State and federal purity of water criteria and codes are discussed. 3 hrs. lecture  
Prerequisite: CE 304.

**CE 412 • 3 credits**  
**Pollution Control of Wastes**  
The nature and causes of solid, liquid and gaseous pollutants and the biological, chemical, and physical characteristics of these wastes are discussed. The analysis, treatment, and disposal of domestic, municipal, and industrial wastes are studied. Survey methods as well as the rationale of control legislation are also discussed. 3 hrs. lecture  
Prerequisite: CE 304.

**CE 413 • 1 credit**  
**Soil Mechanics Laboratory**  
A series of laboratory experiments conducted to supplement the theory course CE 403 by actual experiments in testing of various types of soils. 3 hrs. laboratory.

**CE 421 • 3 credits**  
**Matrix Methods of Structural Analysis**

The stiffness matrix and flexibility matrix methods of structural analysis are formulated in terms of elementary concepts of structural theory. The analysis of plane trusses, plane frames, space trusses, space frames and structural grids using these methods are discussed. Emphasis is placed on the use of the digital computer as a computational tool. 3 hrs. lecture  
Prerequisite: CE 307.

**CE 422 • 3 credits**  
**Design of Structural Systems**  
The design of several types of two and three dimensional load carrying structural systems are studied including alternate building systems of combinations of structural steel and reinforced concrete. The selection of the optimum system for a particular type structure is considered. 3 hrs. lecture  
Prerequisite: CE 308.

**CE 423 • 3 credits**  
**Design of Foundations and Earth Structures**  
The design of retaining walls; spread, strap, and combined footings, mat and pile foundations; caissons are studied. The design of cofferdams and high embankments are discussed. Emphasis is placed on considerations of bearing capacity, settlement, drainage, and waterproofing. 3 hrs. lecture  
Prerequisite: CE 403.

**CE 431 • 3 credits**  
**Highway Engineering**  
A study of the fundamental principles underlying the basic divisions of highway engineering; engineering design and construction

practices, highway planning, economy, and finance, highway drainage, soils, bases, and pavements. 3 hrs. lecture  
Prerequisite: CE 309.

**CE 434 • 3 credits**  
**Traffic Engineering**  
This course introduces the engineering student to the concepts of traffic control. The course begins with a discussion and quantitative appraisal of the characteristics of the components of the transportation systems: the transport user, the vehicle, the road, the control systems, etc. Historical development of control concepts leads to a more detailed discussion of typical control problems such as signing and marking signal concepts and computations, traffic studies for traffic flow analyses, and the development of complex integrated traffic control systems. 3 hrs. lecture  
Prerequisite: CE 309.

**CE 443 • 3 credits**  
**Engineering Hydrology**  
This course explores the relationship of the hydrologic cycle to Civil Engineering. The concept of the water budget, precipitation and abstraction, hydrograph analysis and synthesis are emphasized. Additional topics include frequency analysis, flood routing, snow hydrology, hydrologic synthesis and simulation techniques for large basins as well as urban and small watersheds are explored from the design viewpoint. 3 hrs. lecture  
Prerequisite: CE 311.

**CE 491 • 3 credits**  
**Civil Engineering Project**

The project course may be taken only by students with senior status. The project must be approved by the Civil Engineering Department within six weeks of the beginning of the project semester. If the project is not approved by the Civil Engineering Department, the credits acquired may not be applied towards graduation credits.

**CE 495 • 3 credits**  
**Introduction to Construction Engineering**  
This course serves as an introduction to construction methods, techniques, and engineering considerations. Construction systems such as buildings, bridges, tunnels, dams, and transportation systems are studied. Construction Engineering applications such as formwork and falsework design, earthwork compaction and consolidation, and concrete systems are studied. Cost and estimating techniques are studied. Selected construction projects will be examined. 3 hrs. lecture  
Prerequisite: CE 308, CE 403.

**CE 499 • 3 credits**  
**Computer Methods in Civil Engineering**  
This course is designed for application of computer methods in Civil Engineering. In the area of: numerical methods, structural analysis, water resources and system analysis. Specifically, the course will be oriented to the development of computer programs and their applications, including STRUBAL, HEC 1-5, and other known surveying programs. 3 hrs. lecture  
Prerequisite: CS 261, senior status.



# Computer Engineering

**Daniel J. Murphy (chairperson)**  
(See faculty listing and course descriptions under Electrical Engineering)

Computer Engineering encompasses a broad spectrum of changing and challenging activities such as research, design and development in computer systems, hardware and software, as well as electronic components which are used in the computer industry. The Computer Engineering Degree Program

prepares the students with a strong science background and engineering knowledge to meet the changing high-technology needs in the computer area and for graduate study in computer and electrical engineering. The Computer Engineering Program is managed by the Electrical Engineering Department.

Specialization opportunities are offered in micro-processors and micro-computer systems, advanced

software development, computer communications, digital signal processing, computer graphics as well as the design of information processing systems.

Students may join the IEEE Computer Society, a professional society with its local chapter at the Department. The Department also offers a graduate program leading to the M.S. degree in Electrical Engineering with specialization in computer engineering.

## Requirements

### First Year

ENG 101	102	Freshman English I, II
CH 151	152	Principles of Modern Chemistry I, II
MA 111	112	Analytical Geometry and Calculus I, II
PH 111	112	Physics I, II
PH 121	122	Physics Lab I, II
CS 261		Computer Programming/FORTRAN
CS 262		Introductory Computer Science

Semester Credits:	First	Second
	3	3
	3	3
	4	4
	3	3
	1	1
	3	
		3
	17	17

### Second Year

PH 211	Physics III
MA 211	Analytical Geometry and Calculus III
MA 212	Differential Equations
EN 201/EE202	Elements of Electrical Engineering I, II
EN 231	Materials Science
EE 361	Digital Logic and Design
EE 252	EE Measurement Lab
CS 263	Data Structures
CS 264	Programming Languages
	Humanities/Social Science Electives

Semester Credits:	First	Second
	3	
	4	
		3
	3	3
	3	
		3
		2
	3	
		3
		3
	16	17



Third Year				Semester Credits:	First	Second
EE	311	312	Electronics I, II		3	3
EE	371		Signals and Systems		3	
EN	232		Thermodynamics			3
EN	301*		Applied Engineering Mathematics		3	
EE	351	352	EE Lab I, II		1	1
EE	363		Introduction to Computer Engineering		3	
EE	364		Assembly Language Programming			3
			Humanities/Social Science Electives		3	3
			Free Elective			3
					16	16

Fourth Year				Semester Credits:	First	Second
EE	461	462	Computer Architecture I, II		3	3
EE	467		Operating Systems		3	
EE	464		Digital Systems Design		3	
EE	465		Microprogrammed Design			3
EE	453		Computer Engineering Lab I, II		1	1
			Technical Electives**		3	3
			Free Elective			3
			Humanities/Social Science Electives		3	3
					16	16

\*MA 221-Linear Algebra may be taken in lieu of EN 301.

\*\*At least one technical elective must be taken within the Department. All technical electives taken outside the Department must be approved.

# Computer Science

(See Faculty listings under Electrical Engineering and Mathematics)

The Computer Science curriculum is offered for those students seeking to understand the technological and intellectual roles of the computer. The program is designed to prepare students for careers in computer-related fields and provide the requisite background for graduate study.

The Computer Science program at Southeastern Massachusetts University is jointly managed by the Electrical Engineering and Mathematics Departments. A Computer Science Committee

made-up of faculty from Electrical Engineering, Mathematics, and Business Administration has been formed to provide guidance, and day-to-day administration of the program.

The University provides a multi-program environment using a Digital Equipment System 20 which supports a wide variety of high-level languages, assemblers, simulators and data management tools. In addition, the Electrical Engineering Department provides extensive microprocessor hardware, graphics and PDP-11 mini-computer capability.

During the first three years of study in Computer Science the student builds a sound foundation in computer basics, mathematics and science. The senior year offers the student considerable flexibility in developing a specialty. Software and hardware possibilities exist as reflected in course offerings in System Analysis, Computer Design and Networking.

The members of the Computer Science Committee are: Paul Caron (EE); Jerome Freier (Math); John Gray (EE); Robert Kowalczyk (Math), chairman; George Ladino (Accounting); Steven Leon (Math); and Roger Schroff (EE).

## Requirements

First Year			Semester Credits:	First	Second
MA 111	112	Analytical Geometry and Calculus I, II		4	4
ENG 101	102	Freshman English I, II		3	3
CS 261		Computer Programming/FORTRAN		3	
CS 262		Introduction to Computer Science			3
		Humanities/Social Science Elective*		3	3
		Science Elective*		3	3
				<b>16</b>	<b>16</b>

Second Year			Semester Credits:	First	Second
MA 211		Analytical Geometry and Calculus		4	
MA 263		Discrete Structures			3
CS 263		Data Structures		3	
CS 264		Programming Languages			3
EE 364		Assembly Language Programming			3
EN 201		Elements of Electrical Engineering I		3	
EE 361		Digital Logic and Design			3
		Humanities/Social Science Electives*		3	3
		Science Elective*		3	
				<b>16</b>	<b>15</b>

Thlrd Year				Semester Credits:	First	Second
MA	331	332	Statistical Methods I, II		3	3
EE	467		Operating Systems		3	
CS	364		Data Base Systems			3
MA	221		Linear Algebra		3	
ENG	266		Professional Writing			3
			Technical Elective*		3	3
			Humanities/Social Science*		3	3
					15	15

Fourth Year				Semester Credits:	First	Second
EE	461	462	Computer Architecture I, II		3	3
			Technical Electives*		9	9
			Free Elective*		3	3
					15	15

Total credits: 123

#### \*Technical Electives

The technical electives must be selected from the following list. Also, at least one two-semester course sequence is required.

#### Two Semester Course Sequences

CS	411	Software Engineering
CS	412	Systems Analysis and Design
CS	421	Automata and Formal Language Theory
CS	422	Compiler Design
EE	466	Digital Design
EE	465	Microprogrammed Design
MA	351	Numerical Analysis I
MA	352	Numerical Analysis II
MA	463	Math Modelling
CS	466	Simulation and Modelling

#### One Semester Course

EE	469	Computer Networks
CS	467	Graphics
EE	371	Signals and Systems
EE	471	Communication Theory
MA	212	Differential Equations
MA	353	Applied Linear Algebra
CS	472	Linear Programming



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**\*Humanities/Social Science Requirement**

All Students are required to take a minimum of 18 credits in the Humanities and Social Sciences. These credits are to be taken from the Humanities and Social Sciences listed below with a minimum of 6 credits from each area. Of these, a minimum of two related courses in both a Humanity and a Social Science must be chosen. Also, at least 3 credits must be taken in literature.

**\*Humanities**

1. History
2. Philosophy
3. Art and Music (excluding applied courses)
4. Foreign Language
5. Literature of the English Language, literature of a foreign language or literature of a foreign language read in English translation.

**\*Social Sciences**

1. Economics
2. Political Science
3. Psychology
4. Sociology

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**\*Science Requirements**

The science electives must be selected from the Biology, Chemistry or Physics Departments and the courses must be ones that these departments themselves would credit to a major in their areas. Also, at least two of the courses must be a sequence from the same department. The following science courses may be applied toward the science requirement:

BO	121	122	Biology of Organisms I, II
CH	151	152	Principles of Modern Chemistry I, II
PH	111		Physics I: Mechanics
PH	112		Physics II: Waves and Optics
PH	211		Physics III: Electricity and Magnetism

The associated lab courses are optional, however, it is recommended that the student take them.

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**Computer Science Courses**

**CS 161 • 3 credits**  
**Computer Programming - BASIC**

An elementary programming course designed for the student with no prior experience in data processing. Programming Language: BASIC.

**CS 201 • 3 credits**  
**Computer Literacy**

An introduction to computers, the history of computers, and the social, political and philosophical impact of computers in society. Numerous computer systems (including personal computers) and computer

applications will be studied. The BASIC programming language and "canned" programs will be introduced. This in a non-technical course that is designed to provide the non-science, non-technical student with a background knowledge of what computers are, what they do, and what their impact is on society.

**CS 261 • 3 credits**  
**Computer Programming- Fortran**

A course designed to give the student familiarity with digital computer methods and programming with emphasis

on Fortran.  
3 hrs. lecture  
Corequisite: MA 101, 105, or 111

**CS 262 • 3 credits**  
**Introduction to Computer Science**

Problem solving in Pascal with emphasis on Programming style. Top-down design. structured programming and modular programming. An introduction to data structures and programming languages.  
Prerequisite: CS 261 or MA 132

**CS 263 • 3 credits**

**Data Structures**

Basic data structures: arrays, stacks, queues, linked lists, trees and graphs. Internal and external sorting. Algorithm analysis and complexity.

Prerequisite: CS 262

**CS 264 • 3 credits**

**Programming Languages**

An introduction to formal language concepts; control structures and data flow; dynamic and static storage management; an introduction to passing and compilers.

Prerequisite: CS 262

**CS 364 • 3 credits**

**Data Base Systems**

Data base systems architecture; network, hierarchical and relational systems; logical and physical organizations; schema and sub-schema; normal forms of data relations; data base languages.

Prerequisite: CS 263 and CS 264

**CS 411 • 3 credits**

**Software Engineering**

PROJECT management; software design and structured programming; verification and validation; security and privacy.

Prerequisite: CS 262 and CS 264

**CS 412 • 3 credits**

**Systems Analysis and Design**

The development of commercially-oriented software systems. The systems-user interface; system proposals; organization of programming teams; scheduling and accountability; system acceptance.

Prerequisite: CS 263 and CS 264

**CS 421 • 3 credits**

**Automata and Formal**

**Language Theory**

Finite automata and regular

languages; push-down automata and context-free languages; Turing machines and recursively enumerable sets; linear-bound automata and context-sensitive languages.

Prerequisite: CS 263 and CS 264

**CS 422 • 3 credits**

**Compiler Design**

Fundamentals of compiler construction for modern programming languages. Syntax analysis, table organization, storage administration, semantic routines and code generation.

Prerequisite: CS 421

**CS 466 • 3 credits**

**Simulation and Modelling**

Analysis of discrete event systems by computer simulation. Use of simulation language. Statistical analysis of simulation data.

Prerequisite: MA 463

**CS 467 • 3 credits**

**Graphics**

Programming and data structures for graphics; transformation techniques (translation, rotation, scaling, projection); visualization techniques and the hidden line/surface problem.

Prerequisite: CS 263 and CS 264

**CS 472 • 3 credits**

**Linear Programming**

Large-scale multiple-variable problems constrained by equality and inequality relationships; artificial variables, geometric aspects, and non-negativity requirements; simplex method for computer solution.



# Construction Engineering

**Thomas P. Jackivicz (chair-person)**  
(See faculty listing under Civil Engineering)

As the largest single industry in the United States, construction requires a large force of specially trained engineers to analyze and manage the construction of bridges, buildings, dams, airports, railways, highways, drainage, water supply and wastewater treatment facilities.

The Construction Engineering curriculum prepares students to enter this field by requiring them to complete civil engineering degree requirements in mathematics as well as basic and engineering sciences. Next, a series of construction engineering courses intensively examines the application of mathematics and science to the construction process. Specialties examined include: estimating, formwork design, contracts, specifications, planning and scheduling, cost engineering, and construction methods

and equipment. These courses are supplemented with a series of technical electives and business courses. In addition, in order to prepare the student for his call as a citizen as well as a professional, the curriculum contains a number of courses in humanities and social sciences.

The students are encouraged to join the Student Chapter of the Associated General Contractors and to participate in field trips to construction sites.

## Requirements

First Year			Semester Credits:	First	Second
ENG 101	102	Freshman English I, II		3	3
PH 111	112	Physics I, II		3	3
PH 121	122	Physics Lab I, II		1	1
CH 151	152	Principles of Modern Chemistry		3	3
CS 261		Principles of Computer Programming			3
MA 111	112	Analytical Geometry and Calculus I, II		4	4
EN 161		Graphics I		3	
				<b>17</b>	<b>17</b>

Second Year			Semester Credits:	First	Second
CE 211		Surveying Laboratory I		1	
CE 201		Elements of Surveying		3	
CO 222		Material Science and Construction Materials		3	
EN 241	242	Mechanics I, II		3	3
MA 211		Calculus III		4	
CO 214		Surveying Laboratory II			1
CO 212		Surveying Practice			3
EN 232		Engineering Thermodynamics I			3
MA 212		Differential Equations			3
				3	3
				<b>17</b>	<b>16</b>

Third Year			Semester Credits:	First	Second
CE 302		Mechanics of Materials		3	
CO 321		Materials Lab		1	
EN 201		Elements of Electrical Engineering I		3	
CO 403		Construction Contracts and Specifications		3	
CO 302		Construction Engineering I			3



CO 303	Construction Engineering Lab I		1
CE 403	Soil Mechanics		3
CE 413	Soil Mechanics Lab I		1
CE 307	Structural Theory		3
CE 303	Fluid Mechanics	3	
	Technical Elective		3
	Humanities/Social Science Electives	3	3
		<b>16</b>	<b>17</b>

Fourth Year		Semester Credits:	First	Second
CO 401	Construction Engineering II		3	
CO 411	Construction Engineering Lab II		1	
CE 402	Engineering Economy		3	
CO 421	Mechanical Utility Systems II		3	
CO 431	Structural Design for Construction		3	
CO 402	Construction Engineering III			3
CO 412	Construction Engineering Lab III			1
	Free Elective			3
	Humanities/Social Science Elective			3
	Technical Elective or Project CO 491			3
	Business Electives		3	3
			<b>16</b>	<b>16</b>

**Total credits: 132**

#### Business Electives

AC 101	Accounting I
AC 102	Accounting II
BA 350	Communication
FI 312	Business Finance
IR 422	Personnel Management
IR 394	Negotiations, Mediation, and Arbitration
MK 360	Industrial Marketing
AC 361	Industrial Accounting

#### Technical Electives

(Available in Civil Engineering Department with prior approval.)

#### Construction Engineering Courses

(see previous section for Civil Engineering course descriptions)

**CO 212 • 2 credits**  
**Surveying Practice**  
 The basic principles of control surveys, state plans coordinate systems, field astronomy, curve and volume computations are studied.  
 3 hrs. recitation  
 Prerequisite: CE 201

**CO 214 • 1 credit**  
**Surveying Practice Laboratory**  
 Consists of field practice to understand and supplement the CO 212 course contents.  
 3 hrs. laboratory  
 Prerequisite: CO 212 (concurrent)

**CO 222 • 3 credits**  
**Materials of Construction**  
 Mechanical, physics, and relevant chemical properties of the principle materials of construction are discussed including mineral aggregates. P.C. and A.C. concrete, mortar, gypsum and lime

products, wood and metal.  
3 hrs. recitation  
Prerequisite: CH 151

**CO 232 • 1 credit**  
**Materials of Construction Laboratory**  
ASTM testing of various types of construction materials - supplement to CO 222.  
3 hrs. laboratory  
Prerequisite: CO 222 (concurrent)

**CO 302 • 3 credits**  
**Construction Engineering I**  
Basics of construction estimating and techniques. Techniques of construction, equipment selection procedures, estimating and pricing labor, materials and equipment for problems in earthwork, concrete, steel, woodwork, waterproofing, roofing, plaster, drywall, glass and plastics, etc. are studied. Emphasis is on basic techniques as they relate to construction. The student will determine methods and develop an estimate for a construction project.  
3 hrs. lecture  
Prerequisite: MA 212, CE 302, CO 403

**CO 303 • 1 credit**  
**Construction Engineering Laboratory I**  
This course is an extension of CO 302 Construction Engineering and involves field trips and practical demonstration of the subject material covered in CO 302.

**CO 321 • 1 credit**  
**Strength of Materials Laboratory**  
A series of laboratory experiments are conducted to investigate the physical characteristics of materials and to verify the assumptions made in the course Strength

of Materials (CE 302).  
Prerequisite: Concurrent CE 302

**CO 401 • 3 credits**  
**Construction Engineering II**  
**Heavy Construction Engineering**  
Heavy construction techniques are studied with an emphasis on engineering considerations. Topics studies include piling, and deep foundation techniques, concrete placement techniques, formwork design for walls, slabs, columns, beams and other conditions, earthwork techniques including compaction and surcharging, pumping and dewatering systems techniques and design, tunneling systems, and utilization of compressed air systems. Costs and other economic considerations are examined.  
3 hrs lecture  
Prerequisite: CO 302, CE 307, CE 308

**CO 402 • 3 credits**  
**Construction Engineering III**  
**Advanced Construction Control Systems.**  
Methods and techniques of planning, programming, scheduling and controlling construction operations and complete projects and concepts of networking techniques are examined and integrated. Time/cost/quality control systems are studied with respect to both manual and computer based applications. As a laboratory project the student plans, schedules, and establishes a control system for a construction job.  
3 hrs lecture  
Prerequisite: CO 401, CS 261

**CO 403 • 3 credits**  
**Construction Contracts and Specifications**

The business, legal and professional relations in construction engineering are discussed. Included are the fundamentals of business law, design contracts, types of construction contracts and bidding procedure, construction insurance, and specification writing. Construction contract conditions and provisions are examined and elements of procurement practice studied in detail.  
3 hrs lecture  
Prerequisite: CO 212, CO 222

**CO 411 • 1 credit**  
**Construction Engineering Laboratory II**  
This course is an extension of CO 401 Construction Engineering II and involves field trips and practical demonstrations of the subject material covered in CO 401.  
3 hrs laboratory  
Prerequisite: CO 401 (concurrent)

**CO 412 • 1 credit**  
**Construction Engineering III Laboratory**  
This course is an extension of CO 402 Construction Engineering III, and involves field trips and practical demonstrations of the subject material covered in CO 402.  
3 hrs laboratory  
Prerequisite: CO 402 (concurrent)

**CO 421 • 3 credits**  
**Utility Systems**  
The interrelationship between structural and heating ventilating, air conditioning and electrical systems is examined. Factors influencing the selection and sizing of utility equipment are also discussed.  
3 hrs lecture  
Prerequisite: CE 303, CE 307

**CO 431 • 3 credits**  
**Structural Analysis and Design for Construction**  
Methods of analysis and design of reinforced concrete, structural steel, and timber construction are formulated and discussed. Emphasis is placed on the design of formwork, shoring, and falsework systems for buildings, bridges, dams, tunnels, and other heavy construction applications. Cofferdam and sheathing design and other earth retaining structural design problems are examined as they relate to construction engineering.  
3 hrs lecture  
Prerequisite: CE 307, CO 401 (concurrent)

**CO 491 • 3 credits**  
**Project**  
A. Project course to be taken only by students with senior status.  
B. Project must be approved by the C.E. Department and an outline of the project must be supplied to the C.E. Department within six weeks of the beginning of the project semester.  
C. If the project is not approved by the C.E. Department the credits acquired may not be applied toward graduation credits.

# Electrical Engineering

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## Faculty and Fields of Interest

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**Paul R. Caron** • antennas, plasmas, computers

**Chi-Hau Chen** • communications systems, pattern recognition and signal processing

**Lester W. Cory** • programming languages, HF/VHF communications

**Lee E. Estes** • electrooptics, underwater acoustics

**Gilbert Fain** • underwater acoustics, active circuits

**Lenine M. Gonsalves** • power systems, circuit design

**John W. Gray** • microprocessors, distributed systems, computer networks

**Bertram B. Hardy** • power engineering, energy conversion

**Robert C. Helgeland** • marine electronics, solid state electronics

**Gerald Lemay** • optics and signal processing

**Daniel J. Murphy (chairperson)** • system analysis, filter theory

**Peter Rizzi** • microwave electronics, high frequency systems

**Roman Rutman** • control theory, systems analysis

**Richard Walder** • circuit theory, power systems

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The Electrical Engineering program is designed to prepare students for careers as practicing engineers in the wide variety of fields concerned with electrical and electronic devices and systems. Also, for those students who intend to pursue graduate studies on either a full or part-time basis, this program is consistent with graduate school requirements.

Electrical Engineering encompasses many specialties such as communication, instrumentation, automation, power use and distribution, microwave devices and systems, and digital and analog techniques. In all of these specialties electrical engineers must be familiar with devices and systems and must be able to perform various functions such as research and development, systems analysis, management, production, testing, quality control and sales. They may

pursue careers in monitoring and control of the environment, space exploration, transportation systems, ocean engineering, energy resources and computer science.

The student begins to identify with his field in the second year of study, and in the third year he gains a foundation for further study in all branches of electrical engineering. A senior year composed primarily of elective courses allows the student to concentrate his studies in one or more areas of his choice. A faculty advisor from the department is available to aid the student with his selections. A core of basic science and mathematical courses is interwoven throughout the four years of study and the student has the opportunity to elect 18 credit hours in the humanities and social sciences. Six credit hours of free electives can also be used for specialized study.

The Electrical Engineering Department is nationally accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology and the student can associate with his profession through the student chapter of the Institute of Electrical and Electronics Engineers. Qualified students can join the Zeta Xi Chapter of the Electrical Engineering National Honor Society, Eta Kappa Nu.

The department also offers a graduate program leading to the M.S. degree in Electrical Engineering. For details consult the Bulletin of the Graduate School.

The Department offers a Computer Engineering degree program. A Computer Science degree program is offered jointly with the Mathematics Department.



## Requirements

First Year			Semester Credits:	First	Second
PH	111	112	Physics I, II	3	3
PH	121	122	Physics Lab I, II	1	1
EN*	161		Engineering Design Graphics	3	
CS*	261		Computer Programming-FORTRAN		3
MA	111	112	Analytical Geometry and Calculus I, II	4	4
CH	151	152	Principles of Modern Chemistry I, II	3	3
CH	161	162	Introductory Lab for Engineers I, II	1	1
ENG	101	102	Freshman English I, II	3	3
				18	18

Second Year			Semester Credits:	First	Second
MA	211		Analytical Geometry and Calculus III	4	
MA	212		Differential Equations		3
PH	211	212	Physics III, IV	3	3
PH	221		Physics Laboratory III	1	
EN	201	EE 202	Elements of Electrical Engineering I, II	3	3
EE*	361		Digital Logic and Design		3
EE	252		Electrical Measurements Lab		2
EN	231		Material Science	3	
			Humanities/Social Science Electives	3	3
				17	17

Third Year			Semester Credits	First	Second
EN	301		Applied Engineering Math	3	
EE	311	312	Electronics I, II	3	3
EE	323		Circuit Theory	3	
EE	332		Electromagnetic Theory		3
EE	351	352	Electrical Engineering Lab I, II	1	1
EE	371		Signals and Systems	3	
EE	382		Linear Control Theory		3
			Technical Elective**		3
			Humanities/Social Science Electives	3	3
				16	16

Fourth Year			Semester Credits:	First	Second
EE	451	452	Electrical Engineering Lab III, IV	1	1
EE	471		Communication Theory	3	
			Technical Electives**	6	9
			Free Electives	3	3
			Humanities/Social Science Electives	3	3
				16	16

\*May be taken in either semester.

\*\*One technical elective must be used to take EN 232, Engineering Thermodynamics I.

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Technical Electives Offered in the Undergraduate Electrical Engineering Program (before selecting technical electives, students should confer with a faculty advisor to make certain that requirements in engineering, engineering science, and engineering design are met):

EE	324*	Computer Aided Network Analysis
EE	363*	Introduction to Computer Engineering
EE	384*	Random Signals and Noise
EE	401	402* Undergraduate Research and Independent Study
EE	403	
EE	404	405* Undergraduate Design Project I, II
EE	411	
EE	412	Active Circuits I, II
EE	431	Antennas and Propagation
EE	435	436 Microwave Theory I, II
EE	438*	
EE	441*	Optical Devices
EE	442	Energy Conversion Devices
EE	442	Power Electronics
EE	443	444 Power Systems I, II
EE	461	
EE	463	Computer Organization
EE	463	Logic and Sequential Machines
EE	464	Digital System design
EE	472	Advanced Communication systems
EE	475*	Digital Signal Processing
EE	476	Information Transmission and Coding
EE	481	Advanced Control Theory
EE	482	Optimal Control and Estimation Theory
EE	484	Optimization Theory
CS	262*	Introductory Computer Science
EE	505	Numerical Analysis
EE	515	Modern Optics
EE	561	562 Minicomputers and Architecture I, II
EE	566	
EE	581	Microprocessors
EE	581	Mathematics of System Analysis

At least nine (9) credits of technical electives must be taken from electives offered by the Electrical Engineering Department except by approval of the Department. All technical electives taken outside the Department must be approved.

Courses numbered above 500 are graduate level and may be elected by a student only with the consent of the instructor.

\*Open to third and fourth year students.

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## Electrical Engineering Courses

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### EE 202 • 3 credits Elements of Electrical Engineering II

This course begins with a review of steady-state AC circuit theory. Transient analysis of circuits is developed using the Fourier and Laplace transforms. The remainder of the course introduces the student to the physics of electronic materials, the semiconductor diode, the transistor and the concept of feedback.  
Prerequisite: EN 201.

### EE 252 • 1 credit

**Electrical Measurements Lab**  
Basic circuit and measurement experiments and digital experiments are done in this laboratory course.  
3 hours/week  
Prerequisite: EN 251.

### EE 311, 312 • 3 credits each Electronics I, II

This course will review the principles and circuit modeling of vacuum tube and semiconductor devices. Amplifier design and analysis, including such topics as low-frequency amplifiers, multi-stage design, bandpass amplifiers, transient and frequency response, will be discussed. Other topics will be operational amplifiers, oscillators, modulators and detectors.  
3 hrs. lecture  
Prerequisite: EE 202 or equivalent.

### EE 323 • 3 credits Circuit Theory

The course involves the development of time-domain and frequency-domain techniques for the analysis of linear network equations. Following a review of loop and nodal analysis, initial condition problem and solution of differential

equations are examined. Network theorems and Laplace transforms are used for solving the network equations. Other topics include the network functions, two-port parameters, phasors for AC circuit analysis, energy and power.  
3 hrs. lecture  
Prerequisite: MA 212, EE 202.

### EE 324 • 3 credits Computer-Aided Network Analysis

This course is intended to provide an introduction to computer-aided analysis of electrical networks. No prior knowledge, other than introductory classical circuit theory and Fortran, is assumed. Matrix theory and network topology will be used to write complete circuit analysis programs. Techniques of numerical solutions for classical differential equations and solutions of state equations will be covered. The course will also include the use of a generalized electronic circuit analysis program, such as ECAP.  
Prerequisite: Fortran and Introductory Circuit Theory.

### EE 332 • 3 credits Electromagnetic Theory

This course will cover stationary and time-varying electric and magnetic fields, circuit concepts consistent with Maxwell's equations, the Smith transmission line chart, and waves in isotropic media.  
3 hrs. Lecture  
Prerequisite: EN 301, PH 211.

### EE 351, 352 • 1 credit each Electrical Engineering Laboratory I, II

This two semester laboratory series includes the use of measuring instruments and techniques in the investi-

gation of non-linear device characteristics, and the network response of basic electronic circuits. Emphasis is on semiconductor devices although vacuum-tube and energy-conversion devices will be included.  
3 hrs. laboratory  
Prerequisite: EE 311, 312 and EE 323, 332 taken concurrently.

### EE 361 • 3 credits Digital Logic and Design

An introduction to digital techniques from a functional point of view. This course provides the basics of binary arithmetic, logic functions and design with digital devices. Material covered includes quantization, binary numbers and codes, Boolean algebra, digital circuit elements, and digital algorithms.  
Prerequisite: College level algebra.

### EE 363 • 3 credits Introduction to Computer Engineering

This course will use a specific microcomputer system to introduce general topics in computer engineering. Topics such as computer architecture, assembly language programming, data structures and operating systems will be introduced. Students will be exposed to the use of cross-assemblers and simulators for microprocessors on SMU's DEC-20 Computer System.  
3 hrs. lecture  
Prerequisite: EE 361, CS 261.

### EE 364 • 3 credits Assembly Language Programming

The student will be introduced to assembly language programming. The course will include instruction sets and

addressing modes and students will write programs to be assembled on a cross-assembler and run on a simulator. Programs will also be run directly using actual target machine computer hardware. Algorithms for arithmetic routines, code conversions, searching and routing and input/output will be discussed. A minimum operating system will be described.

### EE 371 • 3 credits Signals and Systems

Frequency domain analysis of linear systems is introduced. Representation of signals by Fourier series, Fourier transform, bilateral Laplace transform, and unilateral Laplace transform are covered in detail. Convolution theorem, impulse response, physical realizability, and electric wave filters are also discussed.  
3 hrs. lecture  
Prerequisite: EE 202, MA 211.

### EE 382 • 3 credits Linear Control Theory

Electrical and mechanical analogs, signal flow graphs, feedback systems, Bode and Nichols diagrams, and rootloci plots are presented.  
3 hrs. lecture  
Prerequisite: EE 371 or EE 323.

### EE 384 • 3 credits Random Signals and Noise

Probability, correlation functions, power spectral density, linear filters, signal-to-noise ratio, optimal bandwidth, and others.  
3 hrs. lecture  
Prerequisite: EE 371

EE 401, 402 • 3 credits each  
**Undergraduate Research and Independent Study**  
Investigations of a fundamental and/or applied nature, 185



Intended to develop research techniques, initiative, and self-reliance. Also, studies into areas not included in the formal course offerings. Admission to the course is based on a formal proposal endorsed by an advising professor. On the recommendation of the advising professor, the course may be extended for another three credits.  
Prerequisite: Senior or second semester junior standing.

**EE 403 • 3 credits**  
**Special Topics In Electrical Engineering**  
Topics of interest to electrical engineering. Course contents may vary from year to year.

**EE 404, 405 • 3 credits**  
**Undergraduate Design Project I, II**  
A design project developed under the supervision of an advising professor.  
Prerequisite: Senior standing.

**EE 411, 412 • 3 credits**  
**Active Circuits I, II**  
The manipulation and generation of linear and nonlinear analog signals primarily using operational amplifiers. Active filters, sample and hold circuits, D/A and A/D's, and phase locked loops are among the devices studied.  
3 hrs. lecture  
Prerequisite: EE 311, 312 or equivalent.

**EE 431 • 3 credits**  
**Antennas and Propagation**  
This course involves various radiating systems including arrays, aperture antennas, and broad-band antennas. Also discusses groundwave propagation and isospheric propagation.  
3 hrs. lecture  
Prerequisite: EE 332.

**EE 435 • 3 credits**  
**Microwave Theory I**  
Electromagnetic theory is reviewed. Transmission lines and waveguides are analyzed from a unified standpoint and the Smith Chart is utilized. Microwave devices such as filters, matching devices and slow and fast wave structures are analyzed and strip-line techniques are discussed. The theory of various microwave devices is presented.  
3 hrs. lecture  
Prerequisite: EE 332.

**EE 436 • 3 credits**  
**Microwave Theory II**  
The theory of Microwave Circuit Analysis is presented and used in analyzing devices and systems. The microwave resonator is discussed. Periodic structures, filters, and space charge waves are discussed and used to introduce the foundations of microwave generators such as klystrons, traveling wave tubes and masers.  
3 hrs. lecture  
Prerequisite: EE 435.

**EE 438 • 3 credits**  
**Optical Devices**  
This course deals with the behavior and principles of operation of the following devices: lenses, prisms, polarizers, waveplates, interferometers, filters, beam splitters, light sources including lasers, light modulators, light detectors, film, microdensitometers, image intensifiers.  
3 hrs. lecture  
Prerequisite: Junior or senior standing.

**EE 441 • 3 credits**  
**Energy Conversion Devices**  
There are many methods of energy conversion of interest to engineering. This course is a study of energy sources, conversion, and storage.

Included will be a thermoelectric process and electrochemical processes. Specialized devices utilizing modern concepts of energy conversion will be surveyed.  
3 hrs. lecture  
Prerequisite: EE 323.

**EE 442 • 3 credits**  
**Power Electronics**  
A study of electronic circuit design based upon power transistors and fixed and/or controlled rectifiers. DC power supplies, choppers, inverters, converters, and cycloconverters are investigated, with applications including high-voltage D.C. transmission systems and DC and AC machine control as applied to drive systems in industry and transportation.  
Prerequisite: Senior EE standing.

**EE 443 • 3 credits**  
**Power Systems I**  
The first semester of power system analysis will include a general study of the power industry and the role of the engineer in it. A thorough study of transmission systems including circle diagrams, and the per unit system as applied to power systems is the essence of this course.  
3 hrs. lecture  
Prerequisite: EE 232.

**EE 444 • 3 credits**  
**Power Systems II**  
Studies of load flow and economical operation of power systems will be followed by an introduction of symmetrical three-phase faults, symmetrical components, and analysis of unsymmetrical faults. The semester will conclude with an overall review of stability.  
3 hrs. lecture  
Prerequisite: EE 443.

**EE 451 • 1 credit**  
**Electrical Engineering Laboratory III**  
This is a continuation of the laboratory sequence and will include laboratory work in electronics, microwaves, communications, and control systems.  
3 hrs. laboratory  
Prerequisite: EE 352.

**EE 452 • 1 credit**  
**Electrical Engineering Laboratory IV**  
Conclusion of the undergraduate laboratory sequence including an investigation of a particular topic or project proposed by the student or assigned by the faculty.  
3 hrs. laboratory  
Prerequisite: EE 451.

**EE 461, 462 • 3 credits each**  
**Computer Architecture I, II**  
The architecture of 16-bit microcomputers will be discussed with emphasis on multiprocessing features. The instruction set, I/O handling, interfacing interrupts and bus structures will be discussed. Use will be made of cross-assembler, simulators and high-level languages. A real-time operating system will be discussed utilizing flow charts and the coding will be presented and analyzed. Prioritized task scheduling in a real-time interrupt driven environment will be discussed. The course will also deal with multiprocessing topics such as bus interfacing, co-processors, bus arbitration, etc.  
Prerequisite: EE 364

**EE 464 • 3 credits**  
**Digital Systems Design**  
State machines. Synthesis using various digital technologies.  
Prerequisite: EE 361

**EE 465 • 3 credits****Microprogrammed Design**

ROM centered design. Beginning with small controllers and progressing to computers. Various devices and techniques will be considered (e.g. PLA's, pipelining, etc.)

Prerequisite: EE 464

**EE 467 • 3 credits****Operating Systems**

Batch systems, multiprogramming and timesharing. Concurrent and cooperating processes; critical sections and semaphore; scheduling policies, memory management and file management. Prerequisite: CS 263 and EE 364

**EE 469 • 3 credits****Computer Networks**

Introduction to current networking methodologies, queueing theory and backbone design; layered architecture, protocols and distributed computer networks.

Prerequisite: EE 467

**EE 471 • 3 credits****Communication Theory**

A course required of electrical engineering seniors and elective to others, including Fourier series and, Fourier transforms, signals and linear networks, matched filter, random variables and probability functions, autocorrelations and power spectra, noises, amplitude modulation phase modulation and frequency modulation, sampling theory, pulse modulation, entropy and channel capacity, system comparison, digital modulation systems. 3 hrs. lecture

Prerequisite: EE 371.

**EE 472 • 3 credits****Advanced Communications Systems**

Review of communications theory, microwave mobile communications, data communications, optical communications, satellite communications. The course emphasizes on overall communications system design. 3 hrs. Lecture

Prerequisite: EE 471.

**EE 475 • 3 credits****Digital Signal Processing**

Sampling process, A/D and D/A conversions, discrete linear systems, recursive and nonrecursive digital filter designs, quantization effects in digital filters, fast algorithms for discrete Fourier transforms and Walsh-Hadamard transform, high-speed convolution and correlation operations, discrete generalized linear filtering, applications to digital processing of real data. 3 hrs. lecture

Prerequisite: EE 371.

**EE 476 • 3 credits****Information Transmission and Coding**

Self-information and entropy, sources of information, the structure of language, noiseless coding and the noiseless discrete channel, some properties of codes, the construction of codes, mutual information, channel capacity and Shannon's theorems, error-correcting codes and decoding algorithms, applications to communication nets. 3 hrs. lecture

Prerequisite: EE 471.

**EE 481 • 3 credits****Advanced Control Theory**

The synthesis of feedback control systems is presented.

Continuous and discrete systems are treated. Non-linear elements are analyzed and the state variable approach is used.

3 hrs. lecture

Prerequisite: EE 382.

**EE 482 • 3 credits****Optimal Control and Estimation Theory**

Optimal design of control systems via analytical techniques: calculus of variations, dynamic programming, and the maximum principle. Observer theory and Kalman filtering are presented. The digital computer is used to solve many of the problems encountered in the course. 3 hrs. lecture

Prerequisite: EE 481.

**EE 484 • 3 credits****Optimization Theory**

Introduction to mathematical programming techniques and their application to engineering problems as well as to other fields. Unconstrained optimization techniques are stressed. Additional topics including linear and quadratic programming are discussed. Computer solutions are emphasized. 3 hrs. lecture

Prerequisite: Calculus and some linear algebra.

**EE 501, 502 • 3 credits each**  
**Graduate Research**

Investigations of a fundamental and/or applied nature, intended to develop design techniques, research techniques, initiative, and self-reliance. Also studies into areas not included in the formal course offerings. Admission to the course is based on a formal proposal endorsed by an advising professor. Prerequisite: Graduate standing.

**EE 505 • 3 credits****Numerical Analysis**

The purpose of this course is to familiarize the engineer with computer-aided techniques, to the point where he acquires the facility to use routinely and confidently a numerical approach in the solution of problems for which analytical methods are impractical or impossible. On the other hand, he will be made aware of the pitfalls and errors inherent in, or even introduced by, computer methods. Primarily electrical engineering examples will be used to demonstrate the various techniques. Use will be made of a DES-20, a PDP 11/45, and IBM scientific subroutines. Course topics include: root-finding methods; integration methods; matrix operations and evaluations; plotting routines; solutions of ordinary and partial differential equations; and random number generations. 3 hrs. lecture

Prerequisite: Graduate or senior EE standing, and facility with Fortran.

**EE 515 • 3 credits****Modern Optics**

The topics considered in this course are Fermat's Principle, Geometrical Optics, Huygens Principle, Coherence, Fourier Optics, Modulation Transfer Function, Side Looking Radar, Holography and Lens Aberrations. Prerequisite: Permission of the Department.

**EE 521 • 3 credits****Random Signal Analysis I**

The topics considered in this course are random variables and probability distributions, statistical averages including correlation functions, sampling theory, spectral analysis, the Gaussian



process, shot noise, and the detection of signals in noise. The course will include several laboratory demonstrations of signal processing techniques.  
3 hrs. lecture  
Prerequisite: EE 471 or equivalent.

**EE 522 • 3 credits**  
**Random Signal Analysis II**  
This course is a continuation of EE 521. Measurement of correlation functions and probability densities, statistical detection of signals, optimum linear systems, optimum filtering and prediction, and the statistical description of nonlinear devices.  
3 hrs. lecture  
Prerequisite: EE 521 or equivalent.

**EE 523 • 3 credits**  
**The Fast Fourier Transform and Its Application**  
The topics considered in this course are the Fourier Transform and its properties, convolution and correlation, Fourier series and samples waveforms, the discrete Fourier Transform and its properties, discrete convolution and correlation, the Fast Fourier Transform (FTT), development of the base 2 FFT algorithms, FFT algorithms for arbitrary factors, FFT convolution and correlation. Throughout the course applications in the areas of linear systems, optics, sonar, radar, and image processing will be presented.  
3 hrs. lecture  
Prerequisite: Permission of the Department.

**EE 541 • 3 credits**  
**Methods in Power System Analysis**  
Review of matrix theory.

Development of algorithms for formation of network matrices. Fault (short circuit) studies. Numerical methods and load flow studies. System stability.  
Prerequisite: Permission of the Department.

**EE 561 • 3 credits**  
**Minicomputers and Architecture I**  
This course will give a practical working knowledge of assembly language programming on a PDP 11 minicomputer including interrupt handling, assembly language — Fortran Interfaces and communications to the operating system. In addition, various themes in the development of computer architectures will be examined including hardware and software developments such as virtual memories, stacks, general purpose operating systems and hardware-software tradeoffs.  
Prerequisite: CS 262 or equivalent.

**EE 562 • 3 credits**  
**Minicomputers and Architecture II**  
The implementation of the control structure of computers will be examined with emphasis on microprogrammed machines. Topics of emulation and simulation will be presented with concepts of virtual and host computers. There will be an overview of various machine architectures and including microcomputers, minis and large scale systems. The types and utility of distributed systems will be discussed and the use of computer networks. Other topics include computer graphics compilers and operating systems with an

introduction to the methods of their implementation.  
Prerequisite: EE 561 or assembly language programming experience with consent of instructor.

**EE 566 • 3 credits**  
**Introduction to Microprocessors**  
Representative microprocessor systems currently available are introduced and compared. The course begins with a general discussion of hardware, software, programming and interfacing. This is followed by consideration of various technologies and hardware/software tradeoffs. In conclusion specific design examples are covered.  
Prerequisite: CS 262 and EE 361 or EE 361 and EE 561 or equivalent.

**EE 571 • 3 credits**  
**Statistical Communication Theory**  
Review of probability theory and random processes; linear systems with random inputs; matched filter and optimum linear filtering and prediction; modulation theory and systems; information theory.  
3 hrs. lecture  
Prerequisite: EE 471 or equivalent.

**EE 572 • 3 credits**  
**Signal Detection Theory**  
Bayes and Neyman-Pearson tests, composite hypothesis testing; signal theory; detection of known signals in Gaussian noise; detection of signals with random parameters in noise; multiple pulse detection of signals; generalized likelihood ratio test; Bayes and maximum likelihood estimations; comparison of communication systems; space-time process-

ing; application to radar and sonar.  
3 hrs. lecture  
Prerequisite: EE 471 or equivalent.

**EE 573 • 3 credits**  
**Pattern Recognition**  
Descriptions of Patterns, Problems Formulation, Linear and Nonlinear Classification Theories, Representation of Patterns, Feature Selection, Supervised Estimation, Unsupervised Estimation, Nonparametric Methods, In Pattern Recognition, Cluster and Mode-seeking Techniques, Recursive Algorithms Using Stochastic Approximation, Sequential Pattern Recognition, Design of Computer Recognition Experiment, Linguistic Approach to Pattern Recognition.  
3 hrs. lecture  
Prerequisite: EE 471 and graduate standing or permission of the Department.

**EE 574 • 3 credits**  
**Topics in Digital Signal Processing**  
Discrete-time signals and systems; the z-transform; the discrete Fourier transform; Network structures; digital filter design techniques; the fast Fourier transform; discrete Hilbert transform; effect of finite register length in digital signal processing; homomorphic signal processing; power spectrum estimation; applications.  
3 hrs. lecture  
Prerequisite: EE 471 or EE 475.

**EE 575 • 3 credits**  
**Seismic, Sonar and Speech Signal Processing**  
The course emphasizes the physical characteristics of seismic, sonar and speech data, and their common



mathematical approaches such as deconvolution for signal processing.  
3 hrs. lecture  
Prerequisite: Permission of the Department.

**EE 576 • 3 credits**  
**Computer Communications**  
Graph theory for computer network analysis and design; coding for error control; system elements including terminals, modems, multiplexers and concentrators, and communication processors; digital transmission media; teleprocessing networks and computer network; system modeling and analysis; the reliability and security problems in computer communications.  
3 hrs. lecture  
Prerequisite: EE 471 and graduate standing, or permission of the Department.

**EE 577 • 3 credits**  
**Artificial Intelligence**  
State-space representations and search methods; problem-reduction representation and search methods; theorem proving in the predicate calculus; games; computer vision; robotics; natural languages; Intelligent computers and society.  
3 hrs. lecture  
Prerequisite: Permission of the Department.

**EE 578 • 3 credits**  
**Picture Processing by Computer**  
This course examines the fundamentals of automatic picture processing and scene analysis. It discusses computer-based methods of segmenting pictures into meaningful parts; determining properties of the parts and relationships among the parts; and using this infor-

mation to construct descriptions of the pictures. Both algorithms and applications are emphasized. Picture description language is also discussed. Five major application areas and their problems considered are: (1) Document reading: thresholding, template matching and geometrical normalization. (2) High energy physics: curve detection, curve tracking, and curve analysis. (3) Cytology: connected component analysis, border analysis and skeletonization. (4) Radiology: edge detection, texture analysis and relational structures. (5) Remote sensing: texture thresholding and edge detection and region growing and partitioning.  
3 hrs. lecture  
Prerequisite: Graduate standing.

**EE 580 • 3 credits**  
**Time Series Analysis**  
The course includes the topics: moving average and autoregressive models, estimation of the mean and autocorrelation, statistical forecasting, spectral analysis and estimation, bivariate processes and linear system identification. Application to electrical engineering is emphasized.  
3 hrs. lecture  
Prerequisite: Permission of the Department.

**EE 581 • 3 credits**  
**Mathematics of Systems Analysis**  
Elementary exposition of linear algebra and time domain methods and their utility in the analysis and design of linear systems. Linear space, state variables, controllability, observability, and assignability; linear state

variable feedback design; parametric invariance are included.  
Prerequisite: Differential equations and matrices.

**EE 582 • 3 credits**  
**Optimal Control Theory**  
The calculus of variation is reviewed and classical optimal control techniques are discussed based on it. Modern control theory is presented including Pontryagin's principle of maximum and Bellman's dynamic programming. Relation to Hamiltonian mechanics is discussed.  
Prerequisite: EE 581 or equivalent.

**EE 584 • 3 credits**  
**Introductory Estimation Theory**  
Estimation problems are analyzed in the time domain via the state variable notation. Filtering, prediction, and smoothing problems are treated, and the connection between Kalman filtering and the Weiner-Hopf integral equation is presented. Non-linear estimation problems are also included.  
Prerequisite: EE 581 or equivalent.

**EE 585 • 3 credits**  
**Numerical Filtering and Smoothing Techniques**  
Numerical techniques involving matrix factorization are developed and used to define estimation algorithms which are computationally stable.  
3 hrs. lecture  
Prerequisite: Permission of the Department.

**EE 586 • 3 credits**  
**Inverse Problems**  
Finding the cause function by given effect function is con-

sidered an inverse problem. Applications cover some problems of data processing, systems control, and communications. Regularization of ill-posed and ill-behaved problems is treated leading to numerically stable algorithms.  
Prerequisite: Numerical Methods and some linear algebra.

**EE 588 • 3 credits**  
**Stability Theory**  
Various types of stability are discussed, with an emphasis on the direct method of Lyapunov. The techniques are applicable to non-linear and linear time — variant systems and include Popov's criterion, circle criterion and treatment of adaptive systems.  
Prerequisite: EE 382 or EE 581, or equivalent: differential equations, matrices.

**EE 590, 591 • 3 credits**  
**Topics in Electrical Engineering**  
Current topics will be discussed. The content of this course will probably change from year to year.  
3 hrs. lecture  
Prerequisite: Permission of instructor.

**EE 593 • 3 credits**  
**Quantum Electronics**  
General principles of the laser including media, transmission and resonators. Specific laser types including solid state, gaseous and semiconductor. Modulation, noise and detection of optical radiation. Non-linear applications such as second harmonic generation and parametric interactions.  
Prerequisites: EE 332 and PH 242 or equivalent.

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**OE 591 • 3 credits**

**Underwater Acoustics I**

Review of the wave equation and its application to acoustics and acoustic boundary value problems. Velocity profiles in the ocean are discussed and ray tracing techniques are developed. Propagation of sound in the sea, transmission losses, boundary effects and the sonar equations are also developed.

Prerequisite: EN 301 or equivalent.

**OE 592 • 3 credits**

**Underwater Acoustics II**

A continuation of Underwater Acoustics I. Normal mode solutions are developed and applied. Reverberation, scattering and ambient and self noise are discussed. The generation of underwater sound and the properties of arrays are examined.

Prerequisite: OE 591.

**CS 565 • 3 credits**

**Topics In Advanced Software I**

This course will emphasize the structure and design of operating systems. Topics include the function of an O.S., switching CPU control, batch systems, processes, multiprogramming and time-sharing. Concurrent and cooperating processes will be discussed with respect to locking operations, shared data, P and V semaphore operators, synchronization, message switching and device communications.

Other topics are scheduling policies, storage management, deadlocks files and file directions.

Prerequisite: EE 561 or consent of instructor.

**CS 566 • 3 credits**

**Topics In Advanced Software II**

This course will focus on the principles and techniques of data base management and data base technology. Topics include objectives of data base organization, entities and attributes, tree and plex structures, data description languages, relational data bases, physical and logical organizations, indexed sequential organizations, multiple key retrieval, inverted file structures and fast response systems.

Prerequisite: EE 561 or systems programming background.

**EE 600, 601 • 6 credits**  
**Graduate Thesis**

**EE 700**  
**Seminar**

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## Faculty and Fields of Interest

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**L. Bryce Andersen** • synthetic fuels

**Gordon F. Anderson (chairperson)** • fluid mechanics, energy conversion and conservation

**Dimitri Argy** • materials science, physical metallurgy, powder metallurgy

**Alden Counsell** • mechanics, strength of materials, manufacturing processes

**David J. Creamer** • mechanics, analytical and experimental stress analysis, anisotropic shells

**Ronald DiPippo** • thermodynamics, power plant design, geothermal energy conversion systems

**Fryderyk E. Gorczyca** • graphics, kinematics, tool engineering

**John W. Hansberry** • solid mechanics, control theory, machine design, vibrations

**Conrad P. Richard** • machine design, graphics, industrial design and planning

**T. K. Roy** • machine design, solid mechanics, shell dynamics

**Thomas B. C. Shen** • heat transfer, thermodynamics, fire research

**K. Srinagesh** • manufacturing processes, physical metallurgy, foundry technology

**Hans U. Thommen** • fluid mechanics, numerical analysis, mechanics

**Howard C. Tinkham** • mechanics of materials, fluid mechanics, heat transfer

**Eugene R. Williams** • thermodynamics, geology, engineering materials

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Mechanical engineers are involved in a broad spectrum of technical activities from the design and manufacture of various products to fundamental research.

Mechanical engineers are concerned with the production, transmission and use of power. They design and develop systems which produce power, such as steam and gas turbines, internal combustion engines, nuclear reactors, jet engines, and rocket motors. On the other hand, they design and develop devices which consume power in order to accomplish some other useful result, such as refrigeration and air conditioning equipment, machine tools, rolling mills, and elevators, to name a few.

The environmental impact of these systems forms an integral part of their analysis and design. Mechanical

engineers must cope with stringent standards on air and water quality, noise abatement and thermal pollution. Their designs must measure up to very severe performance and environmental quality standards.

Graduates of the Mechanical Engineering program find employment in a number of areas, including private industry, government, consulting firms and education. They may be involved in one or more of the following activities: research, design, development, administration, management, sales or production supervision.

The SMU Mechanical Engineering program is fully accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology and has as its goals the preparation of the student for a career in

mechanical engineering or for the continuation of his studies in graduate school. The first two years of the program comprise basic courses in the areas of mathematics, chemistry and physics, together with introductory courses in applied science such as mechanics, materials and electrical science. Specialization occurs during the last two years with courses available in the areas of thermodynamics, fluid mechanics, control systems, materials behavior energy and mechanical design.

A student chapter of the American Society of Mechanical Engineers permits the student to initiate his professional contacts through a program of technical and social events which bring the student together with engineers from industry and students from other engineering schools.



# **Requirements, starting with class of 1983**

First Year			Semester Credits:	First	Second
MA	111	112	Analytic Geometry and Calculus I, II	4	4
CH	151	152	Principles of Modern Chemistry I, II	3	3
CH	161	162	Chemistry Laboratory I, II	1	1
PH	111	112	Physics I, II	3	3
PH	121	122	Physics Laboratory I, II (biweekly)	1	1
ENG	101	102	Freshman English I, II	3	3
EN	161		Engineering Design Graphics*	3	
CS	261		Computer Programming-FORTRAN*		3
				<b>18</b>	<b>18</b>

\*Offered both semesters

Second Year			Semester Credits:	First	Second
PH	211		Physics III	3	
EN	231		Materials Science	3	
EN	221		Materials Science Laboratory	1/2	
MA	211		Analytic Geometry and Calculus III	4	
EN	241	242	Engineering Mechanics I, II	3	3
			Humanities/Social Science Electives	3	3
ME	201		Mechanical Engineering Laboratory I		1
ME	292		Introduction to Mechanical Engineering Design		1
ME	252		Mechanics of Materials		3
EN	232		Engineering Thermodynamics I		3
MA	212		Differential Equations		3
				<b>16 1/2</b>	<b>17</b>

Third Year			Semester Credits:	First	Second
EN	301		Applied Engineering Mathematics	3	
ME	321		Engineering Thermodynamics II	3	
ME	345		Design for Manufacturing	3	
ME	355		Manufacturing Processes Laboratory	1	
ME	381		Design of Machine Elements	3	
EN	201/EE	202	Elements of Electrical Engineering I, II	3	3
EE	252		Electrical Measurement Laboratory		2
ME	305	306	Mechanical Engineering Lab II, III (biweekly)	1/2	1/2
ME	332		Fluid Mechanics I		3
ME	382		Mechanical Engineering Synthesis and Design		4
			Humanities/Social Science Electives		6
				<b>16 1/2</b>	<b>18 1/2</b>

Fourth Year			Semester Credits:	First	Second
ME	494		Design Project	3	
ME	411		Heat Transfer	3	
			Technical Electives	6	6
			Humanities/Social Science Electives	3	3
ME	466		Control Theory		3
			Free Electives		3
				<b>15</b>	<b>15</b>

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### Technical Electives

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ME 412	Applied Heat Transfer
ME 422	Energy Conversion
ME 423	Refrigeration and Air Conditioning
ME 424	Geothermal Energy
ME 425	Power Plant Design and Engineering
ME 426	Synthetic Fuels
ME 431	Fluid Mechanics II
ME 432	Aircraft and Rocket Propulsion Systems
ME 436	Mobile Power Plants
ME 438	Energy Systems Analysis
ME 441	Mechanical Vibrations
ME 442	Introduction to Numerical Methods
ME 452	Mechanics of Materials II
ME 457	Basic Nuclear Engineering
ME 460	Combustion Systems
ME 462	Experimental Stress Analysis
ME 463	Kinematic and Dynamic Analysis of Machines
ME 464	Turbomachinery
ME 471	Physical Metallurgy
ME 472	Metal Forming Operations
ME 473	Powder Metallurgy
ME 490	Special Topics in Mechanical Engineering
ME 496	Directed Study

Students should confer with advisors before selecting technical electives to assure that they meet requirements in engineering science and engineering design.

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### Mechanical Engineering Courses

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#### ME 201 • 1 credit

##### **Mechanical Engineering Lab I**

The laboratory includes experiments to supplement Mechanics of Materials I and Engineering Thermodynamics I. Topics such as calorimetry, specific heats, engine performance, strain gages, tensile and torsion testing are typically covered. Laboratory 3 hours every week  
Corequisites: ME 252, EN 232

#### ME 252 • 3 credits

##### **Mechanics of Materials I**

The course begins with a review of statics and a discussion of deformation of solids. Stress is introduced only after the student understands the mathematics of strain in two and three dimensions. The student's knowledge of coordinate

transformations presented in Dynamics (ME 311) is used to discuss stress and strain as tensors. Elastic deformation under the influence of forces is introduced as a boundary value problem and torsion of a shaft is given as an example. The strength of materials method is used to treat bending of beams, simple structures, and members under combined strain, energy methods and stability are briefly discussed. Lecture 3 hours.

Prerequisite: EN 241

#### ME 292 • 1 credit

##### **Introduction to Mechanical Engineering Design**

Principles of design are introduced primarily through problems in kinematics with some discussion of mathematical modeling of machine

elements and systems. The design process as an iterative procedure is discussed.

Proper forms for calculations and reports for industrial practice are covered.

Lecture 1 hour, Laboratory 2 hours every week  
Corequisites: EN 242, ME 252

#### ME 305, 306 • ½ credit each

##### **Mechanical Engineering Laboratory II, III**

Several extensive investigations into various commonly encountered devices and areas that are of interest to mechanical engineers. These include engines, turbines, water cooling towers, conduction, convection, radiation and refrigeration. Laboratory biweekly each semester.

Corequisites: ME 321, ME 332.

#### ME 321 • 3 credits

##### **Engineering Thermodynamics II**

Mechanical engineering applications of ideal and real compressors; gas turbine power systems; a variety of air-standard cycles including the Brayton, Ericsson, Stirling, Otto, Diesel and Wankel cycles; and several vapor cycles including the Carnot, Rankine, modified Rankine, and binary cycle. An introduction to vapor-compression refrigeration and heat pumps is given. Thermochemistry and combustion are discussed with emphasis on application of the First and Second laws to chemical reactions. Chemical equilibria in homogeneous gas systems are studied. Lecture 3 hours.

Prerequisite: EN 232.



**ME 332 • 3 credits**  
**Fluid Mechanics I**

In this first course in Fluid Mechanics, the basic properties of fluids and the governing equations of their motion are emphasized. The applications are concerned primarily with steady, inviscid flows of incompressible fluids. In particular, the following topics are introduced: physical properties of fluids; fluid statics; kinematics of fluids including stream function, velocity potential, and vorticity; conservation laws in integral and differential form; friction losses for internal flows are included in the extended Bernoulli equation together with pump or turbine power; dimensional analysis; elements of potential flows. Lecture 3 hours. Prerequisite: EN 232, EN 301.

**ME 345 • 3 credits**

**Design for Manufacturing**  
Manufacturing processes are discussed and compared for economy of production; modifications to proposed designs to suit existing equipment are covered. Material selection to suit production and service requirements is covered along with the economics of automation and inventory control. Lecture 3 hours. Prerequisites: EN 241, ME 252, ME 292.

**ME 355 • 1 credit**  
**Manufacturing Process Laboratory**

Experiments in casting, forming, and cutting operations using conventional and modern manufacturing techniques are given to supplement the lecture material in ME 345. Welding and other bonding operations are included as time permits.

Laboratory 3 hours every week.

Corequisite: ME 345.

**ME 381 • 3 credits**  
**Mechanical Engineering Design**

This course comprises a comprehensive survey of the analytical design methods that are valuable to mechanical engineers. Some of the areas covered are: stress analysis, fatigue, stress concentration, design of curved beams, selection of standardized elements, and lubrication. The objective of the course is to enable the student to handle design problems with confidence and assurance. Lecture 3 hours. Prerequisite: ME 252.

**ME 382 • 4 credits**  
**Mechanical Engineering Synthesis and Design**

Mathematical modeling of complete systems is emphasized; techniques for analysis of linear systems are covered in detail with some discussion of nonlinear systems. Optimization of mechanical systems from performance and economic standpoints is considered. The laboratory includes computer analysis of systems and test programs for material and system quality assurance. Lecture 3 hours, laboratory 3 hours per week. Prerequisites: MA 212, ME 381, ME 292.

**ME 411 • 3 credits**  
**Heat Transfer**

The basic principles of heat conduction, forced and free convection and thermal radiation, together with their application to various engineering problems are main topics in this course.

Mass transfer and its analogy to heat transfer phenomena is sketched. Special problems, such as boiling and condensation, heat transfer in high speed flow, and fire propagation are introduced. Mathematical analysis motivated by physical reasoning is emphasized. Lecture 3 hours. Prerequisite: ME 321, ME 332, EN 301.

**ME 412 • 3 credits**  
**Applied Heat Transfer**

The extension of basic heat transfer knowledge to various practical fields of interest such as multiphase heat transfer problems including boiling and condensation, environmental heat transfer problems including aspects of the general problems of thermal pollution, special heat transfer experiments, combustion problems including fire propagation, and the design and analysis of man-made heat transfer devices. Lecture 3 hours. Prerequisite: ME 411.

**ME 422 • 3 credits**  
**Energy Conversion**

This course starts with an introduction to various energy resources, followed by a description of the use of chemical potential energy, nuclear energy and solar energy, the analysis and design criteria for various energy conversion devices, such as generators, transformers, motors, power distribution systems, solar cells, etc. The understanding of the working principles and the essential design conditions are emphasized. Lecture 3 hours. Prerequisite: ME 332, EN 232, EE 202.

**ME 423 • 3 credits**  
**Refrigeration and Air-Conditioning**

The basic principles of refrigeration are presented with applications to vapor-compression, steam-jet, and absorption systems, together with heat pumps. Psychrometrics and the physiological factors involved in air-conditioning are discussed along with the analysis of various processes. In particular the use and analysis of water cooling towers is emphasized. Lecture 3 hours. Prerequisite: ME 321.

**ME 424 • 3 credits**  
**Geothermal Energy**

A brief review of relevant topics from thermodynamics, fluid mechanics and heat transfer is presented. Elements of geology pertinent to geothermal energy are covered. The various types of geothermal resource are discussed in detail and estimates of the potential of each are given. Technical systems of geothermal utilization are covered. Major emphasis is placed on the energy conversion systems to produce electrical power from geothermal resources. Dry steam, single and dual flash, binary, total flow, and hybrid systems are analyzed in detail. The environmental impact of geothermal energy usage and the economic factors associated with it are also discussed. Lecture 3 hours. Prerequisite: ME 321, ME 332, ME 411 concurrently.

**ME 425 • 3 credits**  
**Power Plant Design and Engineering**

Emphasis is placed on using theory as a basis for plant design and equipment selection. Practical design



calculations including heat balance are carried out. Fossil - and nuclear-fueled plants as well as gas turbine and hydroelectric plants are covered. The economics of alternatives is discussed. Lecture 3 hours. Prerequisite: ME 321, ME 411.

**ME 426 • 3 credits**  
**Synthetic Fuels**

The production of synthetic fuels from coal and oil shale, including the engineering, economic, environmental, and political factors that must be considered in developing a viable synthetic fuels industry. Lecture 3 hours. Prerequisite: CH 151, 152 and a course in thermodynamics.

**ME 431 • 3 credits**  
**Fluid Mechanics II**

After a brief review of the basic equations of fluid mechanics, applications to compressible flow are emphasized. In particular, one-dimensional flows are discussed including: variable area flow, Fanno flows, Rayleigh flows and normal shock waves. In two-dimensional flows, oblique shock waves and Prandtl-Meyer flows are studied. A small design project is assigned and performed in small groups. Lecture 3 hours. Prerequisite: ME 332.

**ME 432 • 3 credits**  
**Aircraft and Rocket Propulsion Systems**

This course deals with the mechanics and thermodynamics of airborne propulsion systems. Thrust equations and efficiencies are derived from first principles and applied to a variety of systems. Airbreathing engines that are discussed include

ramjets, turbojets, turbofans, and turboprops. The aerothermodynamics of inlets and nozzles is presented. The course concludes with an introduction to rocket propulsion, including the identification and classification of types of rocket systems, fundamental definitions and derivations, and rocket dynamics. Lecture 3 hours. Prerequisite: ME 321, ME 431.

**ME 436 • 3 credits**  
**Mobile Power Plants**

The course begins with a review of applicable power cycles; factors governing engine efficiency are discussed. Mechanical design of engine components constitutes the bulk of the course with attention given to stress, vibrations, wear and heat transfer. The utilization of power plants other than heat engines, such as fuel cells, is considered. Lecture 3 hours. Prerequisite: ME 321.

**ME 438 • 3 credits**  
**Energy Systems Analysis**  
Analysis of energy systems with particular attention to identifying potentials for energy conservation and the reduction of scarce fuel usage. Identification of system designs that will supply energy to meet a given demand at least cost to the society. Lecture 3 hours. Prerequisite: ME 321.

**ME 439 • 3 credits**  
**Engineering Design of Energy Conserving Systems**  
This course discusses the design and selection of components and subsystems to provide maximum efficiency in energy conserving systems. Mechanical, thermal, and electric aspects

are covered. Lecture 3 hours. Prerequisite: ME 438.

**ME 441 • 3 credits**  
**Mechanical Vibrations**

The course begins with a discussion of generalized coordinates and the Lagrangian method of determining a system's equations of motion. Normal modes and normal coordinates are introduced and the method of matrix iteration is used to find natural frequencies and modes. Free vibration of continuous systems is considered and techniques for finding natural frequencies are developed. Forced and transient responses of one degree of freedom systems are treated extensively, and forced response of multi-degree of freedom systems is discussed. Electrical analogies, use of the analog computer, and modeling of actual physical systems are discussed. Lecture 3 hours. Prerequisite: EN 242, EN 301.

**ME 442 • 3 credits**  
**Introduction to Numerical Methods**  
Emphasis is placed on numerical solutions of nonlinear problems, such as nonlinear equations and systems of nonlinear equations, ordinary differential equations and systems of differential equations including boundary value problems. In addition, the solution of selected partial differential equations is discussed. The stability and accuracy of the numerical methods are investigated. Students are expected to have a working knowledge of FORTRAN IV programming. Lecture 3 hours. Prerequisite: EN 301.

**ME 452 • 3 credits**  
**Mechanics of Materials II**  
After reviewing the development of the flexure formula, the stress equation is derived for unsymmetrical bending. Curved beams loaded in the plane of curvature are analyzed as are beams with combined axial and lateral loadings. The general equation for beams on elastic foundations and its applications are studied. Stresses and deflections due to dynamic loads are examined. The basic equations of elasticity are developed and two dimensional problems analyzed using Airy's stress function. Solutions are compared to strength of materials results. Energy methods are discussed. The Lagrange plate equation is derived and plates fabricated from modern composite materials are discussed. Lecture 3 hours. Prerequisite: ME 252, EN 301.

**ME 457 • 3 credits**  
**Basic Nuclear Engineering**  
A consideration and discussion of the engineering problems in nuclear power generation. Topics include a review of basic atomic structure, radioactive properties of nuclei, nuclear reactions, radiation detection, radiation protection, neutron interactions, steady state reactor core, transient reactor behavior and control, nuclear thermal aspects, and reactor power plant design. Discussion emphasizes the application of basic principles, examples of design processes and detailed performance analysis. Lecture 3 hours. Prerequisite: ME 321.

**ME 460 • 3 credits****Combustion Phenomena**

Combustion phenomena, fire phenomena, power generating systems, combustion engines.

Lecture 3 hours.

Prerequisites: ME 321, ME 332, ME 411.

**ME 462 • 3 credits****Experimental Stress Analysis**

The course is divided into two major parts. The first part of the course deals with theory and practice of photoelastic methods which are applied to classical experimental stress analysis of models and are modified for use in photoelastic coatings. Three dimensional problems are studied and solved by the use of the digital computer. Emphasis is on the interpretation, limitations and designing by photoelasticity. The second part of the course presents the theory and application of mechanical and electrical strain gauges, and brittle coatings. Installation, instrumentation and circuitry of gauge set-ups or transducer use in experimental stress analysis are discussed. Lecture 3 hours.

Prerequisite: ME 252.

**ME 463 • 3 credits****Kinematic and Dynamic Analysis of Machines**

The course begins with an introduction to the various types of mechanisms, their application and methods of operations. Four-bar linkages are discussed in detail with emphasis on the velocity and acceleration analysis of slider-crank, quick-return, scotch-yoke and intermittent motion mechanisms. Vector methodology is used extensively although graphical and complex variable methods are also

employed. Different types of cams and followers are studied and profiles determined satisfying given time-displacement requirements. Both standard and non-standard gears are treated with regard to their construction, performance, usage and geometrical features. Various types of gear trains are analyzed. Force and torque analysis of various machine parts is performed for both static and dynamic conditions. Gyroscopic devices are treated. The course concludes with the study of balance of machinery under static and dynamic conditions. Knowledge of FORTRAN IV computer programming is required. Lecture 3 hours.

Prerequisite: EN 301, EN 242.

**ME 464 • 3 credits****Turbomachinery**

The course introduces the student to the common principles of various turbomachines; selection of appropriate machines for predetermined applications is included using dimensional analysis. A detailed study of flow in a cascade of airfoils is made. Several design programs are assigned. Lecture 3 hours.

Prerequisites: ME 321, ME 332, ME 431 recommended to be taken concurrently.

**ME 466 • 3 credits****Control Theory**

The course begins with a discussion of control system terminology. Modeling of control system elements and the method of linearization and its applicability are discussed. The effects of nonlinearities are briefly mentioned. The Laplace transform, stability, transfer functions, and synthesis are

discussed for linear systems. An introduction to statistical methods is presented. Examples of hydraulic, electrical and pneumatic systems are given, and elements of systems such as servomotors, cams, gears, and linkages are studied. Applications of microprocessors are included. Lecture 3 hours.

Prerequisite: EN 242, EN 301.

**ME 471 • 3 credits****Physical Metallurgy**

The structure of metals and alloys and their determination by x-ray diffraction is presented. Structural imperfections and their influence on mechanical properties are considered. The election theory of metals is introduced. Binary phase diagrams are studied on the basis of thermodynamic principles. Emphasis is placed on the iron-carbon system. Subjects such as creep and fatigue are also considered. Lecture 3 hours.

Prerequisite: EN 231.

**ME 472 • 3 credits****Metal Forming Operations**

Plastic deformation is presented in terms of dislocation theory. Various methods of the failure of metals are discussed and the field of plastic working and shaping is studied. Emphasis is on metallurgical interpretation and the influence of structure on mechanical properties. Operations such as forging, rolling, extrusion, and rod, wire and tube drawing are presented in some detail. Lecture 3 hours.

Prerequisite: EN 231.

**ME 473 • 3 credits****Powder Metallurgy**

Characterization and production of powder. Measuring

techniques and bulk properties. Powder compaction methods. Behavior and powders during compaction and green properties. Sintering. Material transport and transformations during sintering. Sintering atmospheres and furnaces. Properties of sintered materials. Engineering properties and product design. Applications. Lecture 3 hours.

Prerequisite: EN 231.

**ME 490 • 3 credits****Special Topics in Mechanical Engineering**

The course allows visiting professors or members of the faculty to present current topics of interest in their areas of expertise. Lecture 3 hours.

Prerequisite: as required.

**ME 494 • 3 credits****Mechanical Engineering Design Projects**

In this course the student applies his knowledge gained in various courses to the synthesis, analysis, and design of a system in his particular field of interest. Offered by the staff or the department. Laboratory 6 hours, lecture 1 hour.

Prerequisite: Senior standing.

**ME 496 • 3 credits****Directed Study**

A student works under the direction of a faculty member and pursues a specific line of study in an area of interest to the student. The work may deal with subject matter not normally available in the curriculum, or may involve a design project. Lecture/Laboratory arranged as required.

Prerequisite: Senior standing.



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The degree of Bachelor of Science in Engineering Technology has emerged in progressive schools across the country as a solution to the ever-widening gap between the four-year, science-oriented engineering curricula, and the two-year application-oriented curriculum.

Engineering education in the United States has progressed during the last twenty years from a specialized application-oriented training to a broad education in the fundamental sciences which form the foundations of engineering. As a result of vast technological advances there was a tendency to increase the amount of subject material in the engineering curriculum. However, this forced the credit hour requirements for an engineering degree to unrealistically high values, at which point material that had been a traditional part of engineering curricula was gradually eliminated to keep the graduation requirements within reasonable limits.

For students who intend to go on to employment in an application-oriented industry, the present engineering curricula do not provide either the required depth of specialization or the necessary training in the application of engineering fundamentals to engineering problems of lower sophistication. The technology programs are designed to meet this need.

Thus, the engineering technologist is one whose work area lies within the scope of the engineering field and requires the application of scientific and engineering knowledge and methods together with technical skills that support engineering activities.

Each candidate for the degree of Bachelor of Science in the field of engineering technology must satisfy the minimum degree requirements of the department selected with respect to English, the sciences, technical subjects, and electives.

Electives fall into three categories: humanities and social science electives, free electives, and technical electives. The College of Engineering has a minimum requirement of 18 credits in the Humanities/Social Sciences area in addition to English 101 and 102, and has established a policy that none of these may be taken under a pass/fail option. Free electives may be chosen from the course offerings of any college at SMU provided concepts which are new to the student form a substantial part of the course. The technical electives are usually chosen from the courses offered in the student's major department. Courses in the area of mathematics, science or other engineering departments may also qualify as technical electives subject to approval by the student's major department.



# Electrical Engineering Technology

**Daniel J. Murphy** (chairperson)  
(See faculty listings under  
Electrical Engineering.)

The prime objective of the Electrical Engineering Technology program is to provide the student with a practical design experience so that upon graduation he may successfully pursue a career as an electronic technologist. The senior design project is the ingredient in this program which is most necessary to the achievement of this objective. It requires a laboratory design of an electronic component which is the

culmination of a study conducted by the student working as a member of a small team. This affords the student the opportunity to bring to bear, on a practical design problem, the many tools and techniques which he has developed throughout his college years.

The laboratory approach is stressed in this program, demonstration experiments are conducted in the classroom to supplement each of the junior and senior level courses. The incorporation of current industrial techniques,

which is an integral part of this program, is assured through the use of lecturers from nearby industrial organizations.

The Electrical Engineering Technology program is nationally accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology and students may associate with their chosen profession by joining the Student Chapter Of The Institute of Electrical and Electronic Engineers (IEEE).

## Requirements

### Electrical Engineering Technology Program

#### First Year

			Semester Credits:	First	Second
ENG 101	102	Freshman English		3	3
PH 107	108	Basic Physics I, II		3	3
PH 103	104	General Physics Lab I, II		1	1
CH 101		General Chemistry I		3	
MA 105	106	Technical Calculus I, II		3	3
TM 101	102	Graphics I, II		2	2
ET 221		Electric Circuits I			3
				15	15

#### Second Year

			Semester Credits:	First	Second
TM 231	232	Mechanics I, II		3	3
MA 203		Technical Calculus III		3	
MA 204		Differential Equations			3
TM 222		Materials Science			3
ET 222		Electric Circuits II		3	
ET 251	252	ET Lab I, II		1	1
CS 261		Computer Programming-FORTRAN		3	
ET 212		Electronics I			3
Humanities/Social Science Electives				3	3
				16	16

Third Year			Semester Credits:	First	Second
ET	315	Instrumentation		3	
ET	321 322	Circuit Analysis and Design I, II		3	3
ET	341	Electromechanical Energy Conversion		3	
ET	332	Transmission Lines			3
EE	361	Digital Logic and Design			3
ET	311 312	Electronics II, III		3	3
ET	351 352	ET Lab III, IV		1	1
		Humanities/Social Science Elective		3	3
				16	16

Fourth Year			Semester Credits:	First	Second
ET	451 452	Design Project I, II		3	3
ET	472	Applied Communications		3	
		Technical Electives		3	6
		Free Electives		3	3
		Humanities/Social Science Electives		3	3
				15	15

#### Electrical Engineering Technology Courses

##### ET 212 • 3 credits Electronics I

This course is primarily concerned with the operation and application of semiconductor devices. The devices to be discussed are diodes, transistors, zener diodes, silicon-controlled rectifiers, unijunction transistors, and triacs. Applications include clippers, clamping, rectifiers, voltage regulators, and power control circuits.  
3 hrs. lecture  
Prerequisite: Knowledge of dc and ac circuits.

##### ET 221, 222 • 3 credits each Electric Circuits I, II

Basic A-C and D-C circuits, Kirchhoff's laws, loop and nodal analysis. Thevenin's and Norton's theorems, and sinusoidal steady state solutions.  
3 hrs. lecture  
Prerequisite: MA 106 taken concurrently with ET 221; MA 203 taken concurrently with ET 222.

##### ET 251, 252 • 1 credit each Electrical Technology Laboratory I, II

This laboratory sequence introduces the theory and techniques of electrical measurement. D.C. and A.C. indicating instruments and the operation and use of the oscilloscope are covered in the first part of the course. Experiments will relate to course work in ET 221 and ET 222.  
3 hrs. laboratory  
Prerequisite: ET 221, 222 — taken concurrently.

##### ET 311, 312 • 3 credits each Electronics II, III

The use of BJTs and FETs as amplifiers. Biasing techniques and small-signal analysis of different amplifier configurations are developed. Cascaded stages, feedback amplifiers, differential amplifiers, and operational amplifiers (OP AMPS) are discussed. Large — signal power amplifiers are pre-

sented. Basic digital electronics — gates, flip-flops, shift registers, counters, and different logic families are discussed.  
3 hrs. lecture  
Prerequisite: ET 212 or equivalent.

##### ET 315 • 3 credits Instrumentation

Analysis of the operational characteristics of meters, oscilloscopes, spectrum analyzers, etc. will be discussed. Particular attention will be paid to the specification of these devices and to the analysis of the results of using them in engineering measurements and instrumentation.  
3 hrs. lecture  
Prerequisite: ET 222.

##### ET 321, 322 • 3 credits each Circuit Analysis and Design I, II

Network topology, transient analysis, Laplace transform, filters, and computer

techniques as applied to circuits.  
3 hrs. lecture  
Prerequisite: ET 222, CS 261.

**ET 332 • 3 credits**  
**Transmission Lines and Waves**

This course begins with techniques for the calculation of capacitance, inductance, voltage breakdown, skin depth and demagnetizing fields. Wave propagation in free space is discussed and guided propagation via transmission lines is studied in detail. Subjects include standing waves, reflections, VSWR, impedance matching and the Smith Chart. The final subject area covered in this course is antenna theory and design. Gain, beamwidth, radiation resistance and effective area are explained. Various antenna configurations are discussed and analyzed.  
3 hrs. lecture  
Prerequisite: PH 102, MA 204.

**ET 341 • 3 credits**  
**Electromechanical Energy Conversion**  
This course covers essentially the basics of electromechanics as applied to energy conversion devices, followed by studies of specific devices such as dynamos and other transducers, including transformers. Mathematical models of typical physical devices are discussed.  
3 hrs. lecture  
Prerequisite: ET 222.

**ET 351, 352 • 1 credit each**  
**Electrical Technology Lab III, IV**  
This laboratory sequence will coordinate with the course work of the junior year. Emphasis will be on the investigation of nonlinear

device characteristics and response.  
3 hrs. lab  
Prerequisite: ET 222.

**ET 415 • 3 credits**  
**Digital Devices and Systems I**  
Study of modern integrated logic circuits. Detailed electronic circuit analysis of single gates, using primarily the Transistor-Transistor-Logic (TTL) configuration. Use of these gates in the implementation of complex logic functions. Examples of medium and large-scale integrated logic circuits (MSI and LSI), including a study of Flip-Flops from the simple Latch through Master-Slave types. Arithmetic Logic Units and Memory systems.  
3 hrs. lecture  
Prerequisite: College level two-semester Electronics course.

**ET 416 • 3 credits**  
**Digital Devices and Systems II**  
Construction, analysis and operation of the discrete and integrated FET. Study of the basic gate in MOS, CMOS and SOS technology. Configuration and application of MSI circuitry, such as Flip Flops, Shift Registers, Scalers, Counters, etc. Examples of LSI circuitry, such as fixed and variable format, programmable and nonprogrammable memory systems.  
3 hrs. lecture  
Prerequisite: ET 415.

**ET 431 • 3 credits**  
**Microwave Theory and Techniques**  
Guided transmission of electromagnetic waves by means of coaxial and waveguide systems. Transmission line theory and the Smith Chart. The design of cavities,

couplers, filters and attenuators. Microwave generation, detection and measurements. Fundamentals of microwave antennas, ferrite devices and semiconductor components.  
3 hrs. lecture  
Prerequisite: ET 332.

**ET 432 • 3 credits**  
**Microwave Electronics**  
A study of the microwave properties of ferrite and semiconductor materials and their applications to circulators, isolators, parametric amplifiers, multipliers, switches and phase changers. Klystrons, magnetrons and traveling wave tubes are also studied.  
3 hrs. lecture  
Prerequisite: ET 431.

**ET 451 • 3 credits**  
**Design Project I**  
Introduces the student to well-structured projects in the laboratory. The course consists of design projects and experiments of one to three weeks duration in the areas of digital electronics and microwaves, and will challenge the student to use the material learned in his other courses.  
1 hr. lecture, 6 hrs. laboratory  
Prerequisite: Senior standing.

**ET 452 • 3 credits**  
**Design Project II**  
A continuation of ET 451 with more emphasis on self-reliance. The course will consist of comprehensive laboratory design projects and experiments and will be as closely related to industrial experience as possible.  
1 hr. lecture, 6 hrs. laboratory  
Prerequisite: Senior standing.

**ET 462 • 3 credits**  
**Audio Engineering**  
Audio signals, noise, and distortion. Recording and

amplifying systems, transducers, sound measurements and noise control.  
3 hrs. lecture  
Prerequisite: Senior standing.

**ET 472 • 3 credits**  
**Applied Communication**  
Modulation, demodulation, sampling and multiplying are discussed. Random-signal analysis is presented, and a survey of various digital communication systems is included.  
3 hrs. lecture  
Prerequisite: ET 312.



**Gordon Anderson (Chairperson)**  
(See faculty listing under Mechanical Engineering.)

Mechanical Engineering Technology encompasses the methods that are employed as well as the practice that is applied in the design, development, manufacture, operation and installation of machinery, boilers, structures, transportation equipment, heating and air-conditioning equipment as well as other equipment which involves the interaction of mechanical, electrical, fluid, and thermodynamic forces. Mechanical technologists not only translate the ideas of the engineers and scientists into reality but they also bring to the technological team a knowledge of practical production techniques. In industry, the mechanical technologist is frequently

found in a supervisory position over technicians and draftsmen. Employment opportunities are with engineering design organizations, with public utilities, and with corporations dealing with manufacturing and production.

In addition to fundamental mechanical technology courses, the curriculum at SMU contains courses in mathematics, science, humanities and social science in order better to prepare the student to assume a productive role in society upon graduation. During the first year, students develop the skill to produce production drawings by taking two courses in Graphics. The concentration in the second and third year is on basic mechanical engineering subjects and the fourth year is highlighted by

a sequence of two courses in Machine Design which is complemented by an Engineering Technology Design Project course.

Students are encouraged to join and to participate in professional engineering organization activities and are offered early contact with practical problems through field trips to industrial concerns.

The Mechanical Engineering Technology curriculum is accredited by the Technology Accreditation Commission of the Accreditation Board of Engineering and Technology. A student chapter of the American Society of Mechanical Engineers exists at SMU to allow the students to begin their contacts with the professional society of practicing engineers and technologists.

## Requirements

### First Year

TM	101	102	Graphics I, II
MA	105	106	Technical Calculus I, II
PH	107	108	Basic Physics I, II
PH	103	104	Basic Physics Laboratory I, II
ENG	101	102	Freshman English I, II
CH	101		General Chemistry I
CS	261		Computer Programming-FORTRAN

Semester Credits:	First	Second
	3	3
	3	3
	3	3
	1	1
	3	3
	3	
	3	
	16	16

### Second Year

MA	203		Technical Calculus III
TM	217		Manufacturing Laboratory I
TM	218		Manufacturing Laboratory II
TM	219		Manufacturing I
TM	220		Manufacturing II
			Prerequisite: TM 219
TM	231	232	Mechanics I, II

Semester Credits:	First	Second
	3	
	1	
		2
	3	
		3
	3	3

		Humanities/Social Science Electives	6	3
TM	222	Elements of Materials Science		3
TM	223	Elements of Materials Science Laboratory		1
MA	204	Differential Equations		3
			16	18

Third Year			Semester Credits:	First	Second
TM	302	Kinematic Analysis of Machines		3	
ET	221 222	Electric Circuits I, II		3	3
ET	251 252	Electrical Technology Laboratory I, II		1	1
TM	306 307	Mechanics of Materials I, II		3	3
TM	321 322	Thermodynamics I, II		3	3
TM	342 343	Mechanical Technology Laboratory I, II		1	1
		Humanities/Social Science Electives		3	3
TM	332	Fluid Mechanics I			3
				17	17

Fourth Year			Semester Credits:	First	Second
TM	412	Instrumentation and Control Circuits		3	
TM	432	Dynamic Analysis of Machines		3	
TM	422 423	Machine Design I, II		3	3
		Technical Electives		3	6
		Humanities/Social Science Elective*		3	
TM	424	Mechanical Technology Design Projects			3
		Free Elective			3
				15	15

\*May be taken during either first or second semester, alternating with a technical elective, retaining 15 credits each semester.

#### Technical Electives

TM	405	Foundry Engineering
TM	411	Heat Transfer
TM	414	Heat Exchanger Design
TM	431	Internal Combustion Engines
TM	433	Fluid Mechanics II
TM	438	Design of Energy Conserving Systems
TM	445	Photoelasticity with Laser Applications
TM	456	Special Topics in Structural Analysis
TM	461	Experimental Stress Analysis Techniques
TM	496	Directed Study
IT	310	Process Analysis and Planning
IT	403	Tool Engineering
IT	411	Facilities Planning

Any Mechanical Engineering technical elective course may be used as a technical elective for the technology program. Students must obtain prior approval to register for an ME elective from the instructor of the course, except for the following courses for which no prior approval is necessary.

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ME 471	Physical Metallurgy
ME 472	Metal Forming Operations

Students who wish to select technical electives from other departments must receive prior approval from the Mechanical Engineering Department.

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## Mechanical Engineering Technology Courses

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### TM 101 • 3 credits Graphics I

A study of the principles of orthographic projection; instrument and freehand execution of multiview drawing, auxiliary, sectional views, pictorial drawing and lettering. Introduction to dimensioning, fasteners, detail and assembly drawing, graphical mathematics, empirical equations, graphical calculus, and nomography are also covered.  
Lecture 2 hours, laboratory 4 hours.

### TM 102 • 3 credits Graphics II

A course in the graphical solution of problems involving space distances and relationships including auxiliary views, point line and plane relationships, method of revolution, curved surface, intersections and developments, vector applications, and mining applications.  
Lecture 2 hours, laboratory 4 hours.  
Prerequisite: TM 101.

### TM 217 • 1 credit Manufacturing Laboratory I

This course is designed to familiarize machines and operations of manufacturing, serving as a supplement to TM 219.  
Laboratory 3 hours.

### TM 218 • 2 credits Manufacturing Laboratory II

This course consists of

product design, process engineering, and production of a simple machine in the laboratory, serving as a supplement to TM 220.  
Lecture 1 hour, Laboratory 3 hours.  
Prerequisite: TM 217.

### TM 219 • 3 credits Manufacturing I

A study of materials, processes and equipment used in manufacturing to convert ideas into products, machines and structures economically. Topics include turning, shaping, planning, milling, broaching, grinding, forming, powder metallurgy, welding, and casting.  
Lecture 3 hours.

### TM 220 • 3 credits Manufacturing II

Continuation of TM 219. Topics include non-traditional machining, surface cleaning, surface finishing, heat treatment, numerical control, C.A.M., quality control, manufacturing economics, and manufacturing management.  
Lecture 3 hours.  
Prerequisite: TM 219.

### TM 222 • 3 credits Elements of Materials Science

This course covers the engineering requirements of materials including atomic arrangements and atomic bonding, structural imperfections; metallic, organic and ceramic phases and their

properties. Phase relationships, solid state reactions and modifications of properties through structural changes and stability of materials in service environment are also covered.  
Lecture 3 hours.

### TM 223 • 1 credit Elements of Materials Science Lab

For students in Mechanical Engineering Technology.  
Laboratory 3 hours.

### TM 231 • 3 credits Mechanics I

A course in the study of statics of particles and of rigid bodies in two and three dimensions; resultants and equilibrium of forces; centroids and centers of gravity; forces in beams and cables; analysis of structures; friction; moments of inertia of areas and masses. The vector method for the solution of problems is used where applicable.  
Lecture 3 hours.  
Prerequisite: PH 107.

### TM 232 • 3 credits Mechanics II

Kinematics and kinetics of particles and of rigid bodies, rectilinear and curvilinear motion, translation, rotation, plane motion; force, mass and acceleration, work-energy, impulse and momentum; consideration of three dimensional problems is given in this course. Methods

of vector algebra are used in solution of problems where applicable.  
Lecture 3 hours.  
Prerequisite: TM 231.

### TM 302 • 3 credits Kinematic Analysis of Machines

Analysis of the relative motion of machine parts to determine displacement, velocity and acceleration are studied. Topics covered include equations of motion, instant centers of velocity, velocity and acceleration graphs and polygons, cams, rolling contact, gearing, flexible connectors, gear trains, translations, screws and dimensional synthesis.  
Lecture 2 hours, laboratory 3 hours.  
Prerequisite: TM 232.

### TM 306, 307 • 3 credits each Mechanics of Materials I, II

A study of the stresses and strains that occur due to tensile, compression and shearing forces. Shear and bending moment diagrams, investigation and design of beams, and deflection of beams are included. Statically indeterminate members, eccentrically applied load, torsion, and column action are also studied.  
Lecture 3 hours.  
Prerequisite: TM 231.

### TM 321, 322 • 3 credits each Thermodynamics I, II

Properties of substances,



First and Second laws of thermodynamics; Ideal gases; liquids and vapors; heat exchangers; steam turbines; and the reversed cycle, are topics included in the course. Lecture 3 hours. Prerequisite: MA 203.

**TM 332 • 3 credits**  
**Fluid Mechanics I**

This course covers hydrostatics and hydrodynamics; ideal viscous fluids; compressible and incompressible fluids; flow of real fluids in pipes and around immersed objects, boundary layer, lift and drag, flow measurement. Lecture 3 hours. Prerequisite: TM 321.

**TM 342, 343 • 1 credit each**  
**Mechanical Technology**  
**Laboratory I, II**

A basic laboratory course designed to familiarize the student with basic definitions, physical concepts and testing procedures. The first portion is devoted to experiments in strength of materials and general techniques of mechanical testing of materials. The second portion concentrates on measurements in heat/power and fluid flow. Throughout emphasis is placed on the proper presentation and interpretation of data. Laboratory 3 hours.

**TM 405 • 3 credits**  
**Foundry Engineering**

The course consists of a brief but comprehensive presentation of various aspects of foundry operation. Topics include molding, core, casting design, pattern design, solidification, feeding systems, metal melting, cleaning, inspection, mechanization, economics, and management. Lecture 3 hours.

Prerequisites: TM 219, TM 222.

**TM 411 • 3 credits**  
**Heat Transfer**

This course contains a study of steady state conduction; free and forced convection; radiant heat transmission; and the design of heat transfer equipment. Lecture 3 hours. Prerequisite: TM 322.

**TM 412 • 3 credits**  
**Instrumentation and Control**  
**Circuits**

Analysis and design of operational circuitry and measurement of non-electrical quantities, and the study of transducers contribute the basis for this course. Lecture 3 hours. Prerequisite: ET 222.

**TM 414 • 3 credits**  
**Heat Exchanger Design**

Following a general description of heat transfer devices, the following topics are presented: heat exchanger performance analysis and design procedure; heat transfer surface analysis; importance of various design parameters and optimization processes; geometrical configurations of various heat exchangers; specific applications of various heat exchangers with temperature dependent fluid properties; flow nonuniformity on the performance of heat exchangers; heat exchanger tests. Lecture 3 hours. Prerequisite: TM 411.

**TM 422 • 3 credits**  
**Machine Design I**

A survey of the methods, simplified and sophisticated, which can be applied in the broad field of mechanical equipment design. Presenta-

tion of the subject matter, whenever possible, features the distinction between the levels of sophistication appropriate for a given design situation. In assignments, the student is encouraged to make design decisions which serve to prepare him for the experiences that he is likely to encounter in the design project course, and as an engineer upon graduation. Some of the areas covered are: design procedures, simple stress analysis, varying stresses, stress concentration, combined stresses, design of fasteners and springs. Lecture 3 hours. Prerequisite: TM 307.

**TM 423 • 3 credits**  
**Machine Design II**

A continuation of Machine Design I. Areas covered include lubrication; sliding and rolling contact bearings, shaft design; gear design; flexible connectors and clutches. Lecture 3 hours. Prerequisite: TM 422.

**TM 424 • 3 credits**  
**Mechanical Technology**  
**Design Projects**

The student will propose a special design project and upon approval will pursue his investigation of the chosen problem. Investigation and creativity are encouraged in the design process. A final report with recommendations and specifications will be submitted at the conclusion of the course. Lecture 1 hour, laboratory 6 hours. Prerequisite: TM 423 concurrently.

**TM 431 • 3 credits**  
**Internal Combustion Engines**

A study of the internal

combustion engine processes, including the air standard cycle analysis; engine cycles; deviation of the real engine from the ideal engine; detonation, carburetion; fuel injection, combustion chamber and cylinder head design; engine lubrication; cooling and performance. Lecture 3 hours. Prerequisite: TM 322.

**TM 432 • 3 credits**  
**Dynamic Analysis of**  
**Machines**

The course covers the fundamental principles of dynamics of machines. Topics covered include: static forces in machines, inertia forces in machines, flywheels, balancing rotating and reciprocating masses, gyroscopic effects, critical speeds of shafts and the determination of natural frequencies and mode shapes of multidegree of freedom systems. A weekly laboratory session involves experiments dealing with balancing, resonance, analog computer simulation, sound measurements and digital computer techniques. Lecture 2 hours, laboratory 3 hours. Prerequisite: TM 232.

**TM 433 • 3 credits**  
**Fluid Mechanics II**

Torque in rotating machines, system curves, specific speed and similarity laws. Selection of turbines to suit various conditions of operation including small hydroelectric plants. Centrifugal and axial flow pumps, pump selection, cavitation and special problems of pump installation. The course concludes with compressible flow in fans and blowers. Lecture 3 hours. Prerequisite: EN 232, ME 332.

**TM 438 • 3 credits**  
**Design of Energy Conserving Systems**

The course covers the mechanical and thermal aspects of power systems designed for the efficient conversion of energy resources. Design and selection of specific pieces of equipment for energy conservation is emphasized. Lecture 3 hours.  
Prerequisites: TM 321, TM 322.

**TM 445 • 3 credits**  
**Photoelasticity with Laser Applications**

The course is divided into two equal parts, photoelasticity and laser applications in engineering. The first part of the course is concerned with polarized light and its use in stress analysis. The student will be introduced to the techniques and instruments used in photoelastic analysis of stressed models. Current use of industrial photoelasticity will be emphasized. Laser applications in engineering comprise the second half of the course. A review of ray optics, refraction, reflection and lenses serve as an introduction to laser light properties. This portion is followed by simple demonstrations with the laser. The course concludes with an introduction to holography and current industrial applications. Lecture 3 hours.  
Prerequisite: TM 307.

**TM 456 • 3 credits**  
**Special Topics in Structural Analysis**

The course consists of the analysis of a series of existing problems related to structures in the deep ocean environment. The first quarter

of the course will be devoted to review of mechanics of materials. The remaining portion of the course will cover practical problem solving in the areas of stress analysis. Emphasis will be placed on introducing the student to the analysis, selection and interpretation of current handbooks and codes, concluding with a design. The techniques introduced and the philosophy of design will be of a general nature, applicable to many areas of concern to Mechanical Engineers or Technologists. Lecture 3 hours.  
Prerequisite: TM 307.

**TM 461 • 3 credits**  
**Experimental Stress Analysis Techniques**

The course is divided into two major parts. The first part of the course deals with theory and practice of photoelastic methods which are applied to classical experimental stress analysis of models and are modified for use in photoelastic coatings. Three dimensional problems are studied and solved by the use of the digital computer. Emphasis is on the interpretation, limitations and designing by photoelasticity. The second part of the course presents the theory and application of mechanical and electrical strain gauges, and brittle coatings. Installation, instrumentation and circuitry of gauge set-ups or transducer use in experimental stress analysis are discussed. Lecture 3 hours.  
Prerequisite: ME 252.

**TM 496 • 3 credits**  
**Directed Study**  
A student works under the direction of a faculty member

and pursues a specific line of study in an area of interest to the student. The work may deal with subject matter not normally available in the curriculum, or may involve a design project. Lecture/laboratory arranged as required.  
Prerequisite: Senior standing.

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**Industrial Technology Courses**

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**IT 310 • 3 credits**  
**Process Analysis and Planning**

Beyond the design stage, the development and coordination of plans for manufacturing is called process engineering. This course deals with the problems of determining the principal and specific processing sequence for manufacturing in the hardware industry. Casting or modeling, cutting, forming and assembly equipment is selected for the processing sequence after a geometric and functional work-piece analysis has been conducted. Standard equipment, special equipment, and inspection tooling are discussed in detail to facilitate their selection for processing materials into useful products. Selected plant tours reinforce the topic coverage. Lecture 3 hours.  
Prerequisite: TM 220.

**IT 403 • 3 credits**  
**Tool Engineering**  
A study intended to provide a basic understanding of the fundamental force, energy and wear characteristics involved in tool operations as related to the economics of the manufacturing processes. Topics covered include: characteristics of material behavior, metal cutting and

forming and manufacturing economics. Design and analysis of the following tools are considered: single-point tools, axial-feed rotary tools; press-working tools including piercing, blanking, compound and progressive dies, and work-holding devices. Lecture 3 hours.  
Prerequisite: Senior standing.

**IT 411 • 3 credits**  
**Facilities Planning**  
The continuing development of a master plan for production is essential if meaningful progress is to be sustained in manufacturing plants. In Facilities Planning we examine primarily the techniques employed in the resolution of materials handling and equipment layout problems, in addition the contributions of product engineering, method engineering, and production planning and control are considered for their effect on the overall manufacturing master plan. Lecture 3 hours.  
Prerequisite: IT 310.



# College of Visual and Performing Arts

The College of Visual and Performing Arts offers undergraduate degree programs leading to the Bachelor of Fine Arts degree in Art Education, Fine Arts, Textile Design and Visual Design, Bachelor of Arts degree in Art History and the Bachelor of Music degree. In addition, the College offers a program of Visual Design leading to the Master of Fine Arts degree and an Art Education program leading to the Master in Art Education degree.

The undergraduate art programs in the College of Visual and Performing Arts provide both a common foundations program for all art program majors and make the upper division offerings of the college and its departments more flexible and adaptable to the interests and abilities of the art major students.

The undergraduate college presents a professional education in art for the development of a high degree of initial professional competence in the arts for its students. In doing so it offers courses in a wide variety of studio areas as well as supplemental courses in art history to give a broader perspective to the student and his understanding of the role of arts in human experience. In each of the undergraduate programs a series of courses in the liberal arts is required. These include courses in English and sciences, plus elective courses in humanities and social sciences.

The Art History major program includes a spectrum of courses covering the

various fields and periods of the history of Western art, plus other specialized courses in non-Western art.

In addition to its program in the visual arts, The College of Visual and Performing Arts has a Music Division which offers a Major and a Minor in the history, theory and practice of music. The college is offering several courses in the theater arts, and it is hoped that the future will see the development of both an academic and performance oriented program.

The graduate program in Visual Design is a professionally oriented program designed to develop the individual abilities and interests of the student toward the goal of professional involvement in the field of visual design.

The Art Education Department offers a degree of Master in Art Education which has several components for the in-service art teachers, the fine arts major and the continuing art education major. Particulars of the program can be found in the Graduate Catalog.

The College was reaccredited in 1980 in Division I of the National Association of Schools of Art for a period of ten years.

## **Art Portfolio**

Except for art history and music majors, all applicants for admission to the College of Visual and Performing Arts must submit a portfolio to be evaluated by a faculty committee relative to acceptance into the various programs of

the College. The portfolio requirement is in addition to the normal requirement for admission to the university.

An audition is required of all music majors before acceptance into the program.

## **Requirements for the Portfolio:**

All portfolios must be submitted on 35 mm. slides, which will be retained by the College for further use as teaching aids. Slides should be clearly marked with dimensions of work, medium, and the applicant's name. The portfolio review questionnaire enclosed with the admissions bulletin must be completed and returned with the slide portfolio. No portfolios will be reviewed unless accompanied by completed questionnaires and unless formal application to the university has been made.

The portfolio must contain between ten and twenty samples of an applicant's work. Each must be an original piece not copied from anyone else's artwork, and not copied from previously published material in newspapers, magazines, books, or the like.

Because the College puts special emphasis on drawing skills, at least five of the slides must present drawings from life or nature. The subject can be chosen from any of these categories: the human form and body, animals, plants, objects, landscapes, and environments. The original drawings should be on white drawing paper approximately 16" x 20". They should be straightforward investigations of the subject matter.



The remainder of the slides may present work in any medium (paint, sculpture, crafts, photography, etc.). The portfolio should show a clear understanding of composition, the use of color, and a great deal of imagination as well as a sense of quality. Three dimensional work should be represented from two different views.

Although all applicants are expected to submit slide portfolios, for a very few it might be absolutely impossible to do so. In those cases, arrangements for a special portfolio review can be made by contacting the Admissions Office.

Portfolios should be received a week in advance of deadlines for review, or they will be held until the next review cut off date:

January 12	Deadline for First Review
March 9	Deadline for Second Review
April 9	Deadline for Third Review
May 25	Deadline for Final Review

Notification of the portfolio review results should come within three weeks of the review deadline.

SMU offers a portfolio preparation course on Saturdays from 9 A.M. to 1 P.M., the fall semester preceding portfolio review through the Division of Continuing Studies. Information about this course can be obtained through that office at the University.

The College will begin accepting portfolios for review December 1. For further information, please

write or call:  
Portfolio Review Committee  
Group VI, Room 204  
College of Visual and  
Performing Arts  
Southeastern Massachusetts  
University  
North Dartmouth, Massa-  
chusetts 02747  
(617) 999-8000 Extension 8548

#### Transfer Students

All students transferring from other art schools or junior colleges should submit the following to the Fine Arts Admissions Committee:

1. Notice of year in which they desire to enroll (freshman, sophomore, junior).
2. Transcript of credits from former institutions. (Xerox is permissible.)
3. Portfolio of work. If they are applying for admission to sophomore, junior or senior year, they should understand that we will evaluate equivalent competency for their own benefit.
4. The portfolio of work must also be shown to the chairperson of the department the student wishes to enter.

#### Sophomore Review Procedures

During the second semester of the sophomore year, studio art majors are required to present a representative exhibition of their work to an appointed committee of art faculty members for review. The purpose of the review is:

To advise students as to their artistic strengths and weaknesses and to aid them in the selection of an area of emphasis in their art major program.

As a result of the Sophomore Review, the faculty may

recommend to the student that he:

1. continue with his planned program of study within the college, or that he
2. switch to another major area within the college to better utilize and develop his artistic aptitudes, or that he
3. withdraw from further study in the college, since, in the view of the faculty, his chances of successfully completing the upper level programs of study are minimal.

In most programs of study within the college, the faculty recommendation of any of the above will be considered just that: a recommendation that is not binding on the student. However, in some programs of study within the college, where faculty and space is limited, the faculty recommendation becomes acceptance or rejection into the particular program in question.

#### Dates of Review:

The Sophomore Review will be conducted during two (2) weeks in the spring each year arranged so as not to conflict with an official college vacation period. Exact dates of the review will be posted on the art department bulletin board earlier each spring semester.

#### Members of Review Board:

The entire college faculty will take part in the Sophomore Review. They will be assigned to committees of a minimum of three members each. These committees will then serve as individual Board of Review.

Each department or area of study will have the option of

composing its review committee.

#### Assignment of Review Board:

Students will be assigned to a review board according to their intended major areas of concentration.

#### Procedures:

**Step 1.** The students will complete and return their Sophomore Review Application Forms to the department chairman at least two (2) weeks prior to the scheduled dates of the Sophomore Review.

**Step 2.** The student will prepare a portfolio of representative works from his/her courses at Southeastern Massachusetts University (and/or other institutions if a transfer student). All works must be original and must have been created during the student's college program. No pre-college work will be accepted for review. All two-dimensional work must be framed or matted. Each student's portfolio should contain the following minimum numbers of work:

- a. six (6) drawings
  - b. six (6) problems (2 and 3 D)
  - c. four (4) works from a major area of concentration
- Note: Art Education majors must include a representative paper from a sophomore level Art Education course in addition to above.

Textile Design and Visual Design majors should place emphasis on design areas. Painting should place emphasis on painting and drawing. Art education majors may choose from any studio areas of involvement.

**Step 3.** The student shall be assigned to a board of review.

**Step 4.** A master list of the assigned boards of review and scheduled review times will be posted at least one (1) week prior to the scheduled dates of review.

**Step 5.** On his/her scheduled time and day of review the student will pursue the following procedures:

- a. Have his/her work set up in an exhibition format in the scheduled area prior to the scheduled time of review.
- b. Stay with his/her exhibit for the required time periods and be prepared to respond to questions related to it.
- c. The student will remove all his/her work from the review area.

**Step 6.** The Board of Review will make its recommendation in writing. Copies will be provided for the student, the Dean's office and the departmental advisor.

**Step 7.** Students who did not pass the review will automatically be reviewed by the entire art department faculty.

#### **Retention of Student Work**

The College of Visual and Performing Arts maintains the right to retain student class work for teaching and exhibition purposes. Every effort will be made to see that this right is not abused and that it is exercised equitably.

#### **Course Prerequisites:**

Most courses in The College of Visual and Performing Arts are sequential. As a result, it is necessary that a student complete the appropriate course prerequisites before expecting to register in any course offered by the College. Students will be expected to meet all course prerequisites or their equivalent unless specifically

waived of this requirement for a particular course by the chairperson of the department in which the course is offered. Students who become erroneously registered for a course for which they have not met the prerequisites will be allowed to continue in the course. Course prerequisites are noted in the catalog course descriptions when appropriate.

#### **Studio Credit/Class Hour Requirements**

Studio art courses require three hours of work per week for each hour of credit. In most studio art courses two hours per credit a week are scheduled in class, and the third hour is the individual student's responsibility to complete in addition to the regularly scheduled class time. Courses which require a model or special facilities have the three required hours per credit per week scheduled in class.

#### **Advanced Placement**

Credit for equivalent courses will be awarded for grades of three or above. (AP exams are graded on a 1-5 scale.)

Such credit may be used to satisfy distribution requirements or as elective credits outside the major field of a degree candidate or to allow omission of equivalent SMU courses.

#### **Degree Requirements**

To fulfill the requirements for the Bachelor of Fine Arts degree, the student must complete programs of study involving the following total semester credit hours:

Art Education	126
Fine Arts	127
Textile Design	126
Visual Design	126

To fulfill the requirements for the Bachelor of Arts degree, the student must complete programs of study involving the following total semester credit hours:

Art History	123
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Each major program involves at least thirty (30) credit hours of Liberal Art courses and twelve (12) hours of Art History courses in addition to its major and elective studio courses.

All first-year students in the College of Visual and Performing Arts are required to take Freshman English (ENG 101, ENG 102) a two semester course in the basic skills of communication, written and spoken, unless specifically exempted by an advanced placement test administered by the department of English.

A science elective (2 courses, 6 credit hours) is required in all programs of the College, and each student is required to complete a minimum number of credit hours of humanities and/or social science electives in all major programs. To meet this requirement, students normally select courses from both the humanities and social science.

#### **Cumulative Average**

Requirements for Graduation To be eligible to graduate, the student must have achieved at least a 2.0 cumulative average (C) for his entire program with a minimum of 2.0 in his major field of study.

#### **Requirements for the Masters of Fine Arts Degree**

To fulfill the requirements for the Master of Fine Arts degree, the student must complete a program of studies totalling sixty (60) semester credit hours with at least a 3.0 cumulative average (B) for his entire program. Of the total program six (6) credit hours are devoted to a thesis project in which the student must develop and present a comprehensive problem in visual design which is evaluated according to the highest professional criteria.



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### Foundation Program

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The Foundation Studio Courses (AR 100 courses) are required of all Art Majors and are a prerequisite for all AR 200, or higher courses in Fine Arts, Visual Design, Textile Design and Art Education. These studio courses deal, on a primary level, with all of the necessary prerequisites for the in-depth

study in any of the sophomore option areas offered by the College. Great emphasis on drawing skills through organic and non-organic subject matter, as well as a probe of conceptual approaches are designed to develop a perceptive sensitivity to composition and the order of design elements.

A-H 101, Ancient and Medieval Art, and A-H 102, Renaissance to Modern Art, are required art history courses and together with A-H 345 Development of Modern Painting, scheduled for the second year, provide an historical survey of the art of the Western world.

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### First Year Curriculum for All Art Majors (Except Art History)

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First Year			Semester Credits:	First	Second
AR 110	112	Foundation Drawing		3	3
AR 114	115	2D Workshops I and II		2	2
AR 124	125	3D Workshop I and II		2	2
A-H 101		Ancient and Medieval Art		3	3
or		or			
A-H 102		Renaissance to Modern Art		3	3
ENG 101	102	Freshman English		3	3
		Social Science Elective		3	3
				16	16

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### Foundation Courses

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#### AR 110 • 3 credits Foundation Drawing

A studio exploration of varied subject matter, with special emphasis on the human form, and its representation on the 2-D surface with various drawing media. 6 hours per week.

**AR 112 • 3 credits  
Foundation Drawing**  
Continuation of AR 110.  
Prerequisite: AR 110.

**AR 114 • 2 credits  
2D Workshop I**  
An introduction to 2-D principles of composition through projects exploring line, shape, texture, tone, and color. Students work with basic wet and dry line color media. 4 hours per week.

**AR 115 • 2 credits  
2D Workshop II**

Continuation of AR 114.  
Prerequisite: AR 114.

**AR 124 • 2 credits  
3D Workshop I**  
An introduction to 3-D concepts through projects exploring form, space, structure, texture, color, and environment. Students work with basic sculpture processes of carving, modeling, casting, and assemblage.

**AR 125 • 2 credits  
3D Workshop II**  
Continuation of AR 124.  
Prerequisite: AR 124.

**A-H 101 • 3 credits  
Ancient and Medieval Art**  
This course constitutes a survey of Prehistoric, Egyptian, Mesopotamian, Greek, Roman, Byzantine, Carolingian, Romanesque and

Gothic Art, and is designed to familiarize the student with the visual and literary vocabulary of art.

**A-H 102 • 3 credits  
Renaissance to Modern Art**  
This course, a continuation of A-H 101, however, need not be taken in sequence, surveys the painting, sculpture and architecture of the Renaissance in Italy and Northern Europe, sixteenth century Mannerism, the Baroque and Rococo periods, and the 19th century to Impressionism.

Note: A-H 101 is a prerequisite for all subsequent courses covering periods before the Renaissance, and A-H 102 is the prerequisite for all subsequent courses concerned with periods since the Renaissance.



# Art Education

## Faculty and Fields of Interest

**Llisa Lledes** • art education, painting, drawing

**Peter London** • art education, painting

**Dante Vena (chairperson)** • art education, printmaking, drawing and painting

The Art Education program provides a sequence of practical, theoretical and studio-based experiences leading to proficiency in the

teaching of art. The scope of the program permits the student to work in public school systems and/or in other private and public agencies and levels. The core of the program is a balance between supervised field work in surrounding communities and university courses in the theory and practice of art and education. All courses, except Senior Seminar and Student Teaching, are open to the

College of Visual and Performing Arts and all other colleges within the University.

A positive recommendation of the Sophomore Review Committee permits the student to major in the program. Successful completion of the program leads to state certification as well as a Bachelor of Fine Arts degree, well as a Bachelor of Fine Arts degree.

## Requirements

### Second Year

			Semester Credits:	First	Second
AE	200	Development of Visual Symbols		3	
		Modern Era Art History Elective		3	
ED	205	Human Development and Learning			3
or					
PY	340	Educational Psychology			
or					
ED	310	Understanding the School Child			
ED	210	Philosophy of Education			3
AE	210	Arts in Societies			3
		Studies in Literature		3	3
AR	221	Figure Drawing		2	2
	222	**CVPA Electives		5	3
				<b>16</b>	<b>17</b>

### Third Year

			Semester Credits:	First	Second
AE	300	Curriculum Methods: Methods and Materials in Art Education		3	
AE	310	Curriculum Methods, Concepts and Principles in Art Education			3
		Science Elective		3	3
		*CVPA Electives		9	10
				<b>15</b>	<b>16</b>

### Fourth Year

			Semester Credits:	First	Second
AE	400	Curriculum Methods in Art Education: Humanistic		3	
AE	410	Art Education Seminar			3
AE	411	Student Teaching			9
		Humanities/Social Science Electives		3	3
		*CVPA Electives		9	
				<b>15</b>	<b>15</b>

Total credits: 126

\*Studio concentration may be Painting, Visual Design, or Textiles. With consultation of the Art Education chairperson, a concentration in a studio area can be designed in other areas, e.g. Crafts, Art History, Sculpture, 2-D work, etc.

\*\*Painting majors: take sophomore Painting and Drawing. Visual Design majors: take Color, Methods and Materials and Structural Representation in the sophomore year.

Four Art History courses are required for graduation.

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### Art Education Courses

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**AE 200 • 3 credits**  
**Development of Visual Symbols**

Provides an understanding of the sequential development of symbolization from infancy to adulthood in formal and informal learning settings. The course will enable students to develop a skilled and critical use of techniques for observing and recording children's creative behavior. Through field work and related readings, students will observe and analyze the creative expression of children and adults.

**AE 210 • 3 credits**  
**Arts In Societies**

The objective of this course is to describe the wide variety of purposes that artists and the arts serve society. It will investigate the present American society-artist relationship and contrast it with selected societies, present and past. The artist as recorder, celebrator, protagonist or propagandist, designer, prophet, craftsman, performer will be studied to appreciate the many contributions of the artist to the community. The course will employ lectures, interviews with artists, papers, and slide presentations to convey its content.

**AE 300 • 3 credits**  
**Curriculum Methods in Art Education: Methods and Materials**

The most frequently practiced art curriculum is one based upon media exploration. Each medium has special properties and appeals and should be appreciated by the art teacher as both a mode of expression and means of instruction. The objective of this course is to develop skills in designing curricula for varied age groups which concentrate on the expressive range of each media. The field work component consists of media demonstrations both in class and in in-service workshops.

**AE 310 • 3 credits**  
**Curriculum Methods in Art Education: Principles and Concepts**

This curriculum design course will have as bases: elements of art, e.g. line, color, form, texture; concepts, e.g. pattern, symmetry, rhythm; and styles of art, e.g. classicism, romanticism, expressionism. The student will develop lessons and units which are based on the above qualities and put them into practice through field work and classroom presentations. Field work will be primarily with in-service teachers.

**AE 400 • 3 credits**  
**Curriculum Methods in Art Education: Humanistic Approaches**

The humanistic approach to curriculum design places the needs and attributes of the learner first and foremost in considering the question "What shall I teach?" The client's physical, emotional, intellectual, and social standing is assessed and then the curriculum designed to respond to noticed areas of need and want. The client is appreciated moralistically and close interpersonal relations fostered. Field work will be done in non-public school settings such as hospitals, day care centers, and other social welfare agencies.

**AE 410 • 3 credits**  
**Art Education Seminar**

Intended to coordinate with AE 411, this seminar provides the opportunity for the student teachers to come together once a week and share their insights and problems. Continued readings in contemporary ideas in art education and demonstrations of newer techniques and media. Prerequisite: Departmental recommendation.

**AE 411 • 9 credits**  
**Student Teaching**

Experience in the observation and teaching of art in circumstances similar to those of the classroom teacher. The student is assigned to a school corresponding as much as possible with the student's own interest. Working with and supported by a cooperating teacher and supervisor from the University, the student is afforded the opportunity to conduct art experiences under actual classroom conditions and responsibilities. Prerequisite: Departmental recommendation.

## Faculty and Fields of Interest

Richard Creighton • sculptor	Laurie Kaplowitz • painter
Herbert P. Cummings • painter	Frank McCoy • painter
Willoughby Elliott (chair-person) • printmaker	Anthony Miraglia • painter
	Edward P. Togneri • painter

## Fine Arts Major

The Fine Arts area has three majors: painting, printmaking, and sculpture. In all of these majors there is a solid foundation in drawing which continues for four years. In each major the students also receive a solid foundation in traditional materials, methods and principles, relative to the Fine Arts in general and their area in particular. The students are encouraged to pursue their own direction and to choose many different modes of personal expression.

The ultimate objective is to develop the student's respect for the learning process and the creative act as a means of preparing him for an active role in the cultural stream of life.

In the Fine Arts program, we do not teach artists; rather we are involved in the process of teaching students to become artists. This includes teaching the elements and the principles of the craft so that the student will be firmly grounded in the basic concepts. Once the student is versed in these basic concepts, he has the ability to move in many more directions with confidence and authority.

The above is not to imply that craftsmanship is synonymous with art. Craft and basic concepts are employed to produce work that transcends mere craft. The student is not expected to follow blindly customs of the past or trends of the

present. However, the student must realize that structure is one of the aims of his education in art.

The basic fundamentals should be considered in the making of a work of art and should be a part of the making of an artist. These fundamentals should not only consist of learning the elements of visual order but also the promotion of the ability to be wondering and inquisitive.

## Fine Arts Major Program

Second Year				Semester Credits:	First	Second
FA	221	222	Major Studio		3	3
			Figure Drawing I		2	2
			Studio Elective		3	3
A-H	345		Development of Modern Painting		3	
or						
A-H	346		Development of Modern Sculpture		3	
			Humanities/Social Science			3
			Studies in Literature		3	3
					14	14



Third Year			Semester Credits:	First	Second
		Major Studio		6	6
FA 311	312	Composition		3	3
FA 321	322	Figure Drawing II		2	2
		Studio Elective		3	3
		Science Elective		3	3
				17	17

Fourth Year			Semester Credits:	First	Second
		Major Studio		6	6
FA 421	422	Drawing III		2	2
		Studio Elective		3	3
		Humanities/Social Science		3	3
		Art history Elective (either semester)		3	
				17	14

Total: 125 credits

Note: Sculpture required one semester for Painting majors. Painting required one semester for Sculpture majors.

Printmaking majors are required to take two semesters of painting, two semesters of figure drawing, and at least one semester of printmaking chosen from the 200 series (FA 281, 283, 285) during the sophomore year.

These three AR 200 courses are necessary to complete Printmaking I.

A Printmaking major must complete Printmaking I before taking Printmaking II.

If a Printmaking major takes only one 200 Printmaking course in the sophomore year, he/she must take the two remaining courses in the 200 series concurrently in the

first semester of the junior year.

A minimum of one Art History elective (3 credits) must be taken for the required A-H 101, A-H 102, A-H 345 or A-H 346 sequence. All Painting and Printmaking majors are required to take A-H 345, Development of Modern Painting. All sculpture majors are required to take A-H 346, Development of Modern Sculpture.

#### Fine Arts Courses

##### FA 221 • 2 credits Figure Drawing I

The Human figure, its form, mass, and proportions, is studied in relation to its environment. Live models are used. Six studio hours. Prerequisite: AR 112.

##### FA 222 • 2 credits Figure Drawing I

A continuation of FA 221.

##### FA 241 • 3 credits Painting I

This is an introductory course in beginning painting. The technique of oil is predominant, however, other plastic mediums are also considered. Concepts of design, composition, and color are studied. The development of the intuitive and creative ability of the individual is given careful attention. Eight studio hours. Prerequisite: AR 112.

##### FA 242 • 3 credits Painting I

A continuation of FA 241.

##### FA 281 • 3 credits Printmaking I

A studio course in silkscreen, in which various stencil-making processes will be introduced. Color and shape relationships, as well as artistic values and techniques will be stressed. Prerequisite: Painting I and Figure Drawing I must be

taken in conjunction with Printmaking I.

**FA 283 • 3 credits**

**Printmaking I**

A studio course in the techniques of Intaglio. Artistic values as well as techniques will be stressed.

Prerequisite: Painting I and Figure Drawing I must be taken in conjunction with Printmaking I.

**FA 285 • 3 credits**

**Printmaking I**

An introduction to the printing process of lithography on stone, and aluminum plate. The development of artistic values as well as technical facilities will be stressed. Prerequisite: Painting I and Figure Drawing I must be taken in conjunction with Printmaking I.

**FA 291 • 3 credits**

**Sculpture I**

A structured introduction to basic techniques including clay modeling from the figure, uses of plaster, wood, welding, bronze and aluminum casting. The course is meant to enable the beginning student to explore medium and gain fundamental skills with them. Occasional slide talks. Content, form and technique are discussed in relation to the work. Prerequisite: Sophomore art major standing or permission of department.

**FA 292 • 3 credits**

**Sculpture I**

A continuation of FA 291.

**FA 311 • 3 credits**

**Composition**

An advanced consideration of design principles is applied to weekly assigned drawing problems. Resourcefulness in

technical treatment and imaginative approach are encouraged. Six studio hours. Prerequisite: FA 242 and FA 222.

**FA 312 • 3 credits**

**Composition**

A continuation of FA 311.

**FA 321 • 2 credits**

**Figure Drawing II**

This course is a continuation of Figure Drawing I with more attention given to composition and individual approaches. New techniques and media are introduced. Six studio hours. Prerequisite: FA 222.

**FA 322 • 2 credits**

**Figure Drawing II**

A continuation of FA 321.

**FA 341 • 6 credits**

**Painting II**

This is an intermediate course, with painting problems related to the individual and to improve the student's ability to compose in a professional manner. The student works from the figure, nature, and still life with an emphasis toward his personal development. Twelve studio hours. Prerequisite: FA 242 and FA 222.

**FA 342 • 6 credits**

**Painting II**

A continuation of FA 341.

**FA 381 and other 300 Print**

**Courses • 3 or 6 credits**

**Printmaking II**

A studio course aimed at developing a high degree of technical articulation with printmaking techniques of the students' choice as they relate to the image making process. Prerequisite: FA 222, 281, 283, 285.

**FA 391 • 3 or 6 credits**

**Sculpture II**

A course designed for those having a deeper interest in sculpture. Intended to deepen and refine skills in one or more media. The beginning of the student's development of a sculptural idea in an open workshop. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly. Prerequisite: FA 292.

**FA 392 • 3 or 6 credits**

**Sculpture II**

A continuation of FA 391.

**FA 421 • 2 credits**

**Drawing III**

A drawing course intended to help the student correlate previous drawing experiences. More emphasis is placed on individual expression and interpretation. Six studio hours. Prerequisite: FA 322.

**FA 422 • 2 credits**

**Drawing III**

A continuation of FA 421.

**FA 441 • 6 credits**

**Painting III**

This course covers advanced problems in painting with emphasis on personal development. There are individual criticisms and seminar discussions of contemporary problems in painting. Twelve studio hours. Prerequisite: FA 342.

**FA 442 • 6 credits**

**Painting III**

A continuation of FA 441 with the student gradually working more independently. Criticisms become even more on an individual basis. Prerequisite: FA 441.

**FA 481 and other 400 Print**

**Courses • 3 or 6 credits**

**Printmaking III**

An advanced studio course in printmaking aimed at the further development of a professional attitude toward the printmaking techniques as a means of artistic statement. Prerequisite: A minimum of 15 credits in printmaking.

**FA 491 • 3 or 6 credits**

**Sculpture III**

A studio course stressing individual concentration with sculptural media and processes for the advanced student. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly. Prerequisite: FA 392.

**FA 492 • 3 or 6 credits**

**Sculpture III**

A continuation of FA 491. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly.

## Faculty and Fields of Interest

Robert Barry • illustration	Georgette Macafee • design	Harold Pattek • design
Elaine Fisher • photography	George Mellor • design	Marjorie Durko Puryear • textile design, weaving
Howard Glasser • calligraphy	Carolyn Johnson/Mills • textile design	Howard Windham • design
Harvey Goldman • ceramics	Margot Neugebauer (chair- person) • jewelry	Dietmar Winkler • design, typography

## Design Major

This program is based entirely on the understanding of the designer as an artist. While it is directed in many ways toward a professional competence, it refuses to fetter the designer with a rigid set of principles or practices. In general, the assigned projects deal with communications in the widest sense, and the student is expected to be able to solve these projects creatively by using the widest variety of technical and graphic means. A student may choose to major in visual design, illustration, ceramics and photography within the Design Major.

## Textile Design Major

Education of the textile designer is concerned with the preparation of the student to design woven and printed fabrics plus other industrial applications in the areas of wallpapers, tiles, decorative papers and plastics. The student in the Textile Design major program is confronted with creative, technical and production problems related to the field. A student can major in either woven or printed fabric design.

## Design Major and Textile Design Major Program

First Year	Semester Credits:	First	Second
Foundation Program		16	16

Second Year	Semester Credits:	First	Second
	Humanities/Social Science Elective	3	
	English Literature	3	3
	Figure Drawing I	2	2
FA 221 222			
DE 281 or	Photography I or Handweaving I	3	
DE 273			
DE 282 or	Photography II or Handweaving II		3
DE 274	Modern Art History		3
	Major Studio	3	3
	Studio A or B	3	3
		17	17



Third Year	Semester Credits:	First	Second
Science Electives		3	3
Major Studio		3	3
Studio A or B		3	3
Studio A or B		3	3
Studio C		3	3
		15	15

Fourth Year	Semester Credits:	First	Second
Humanities/Social Science Electives		3	3
Art History Elective		3	
Free Elective			3
Major Studio		6	6
Studio C		3	3
		15	15

Total credits required for degree — 126.

#### Design Department Courses

##### Major Studio:

Visual Design I, II, III, IV, V, VI  
Textile Design I, II, III, IV, V, VI  
Ceramics I, II, III, IV, V, VI  
Handweaving I, II, III, IV, V, VI  
Illustration I, II, III, IV, V, VI  
Photography I, II, III, IV, V, VI

##### Studio A/B: (6 semesters required)\*

Typography I, II (required for Visual Design Major)  
Design and Structure I, II (TT courses, required for Textile Design and Handweaving Majors)  
Textile Technology I, II (TT)  
All Fine Arts Electives  
Calligraphy I, II  
Ceramics I, II  
Color, Materials and Methods  
Illustration I, II  
Structural Representation

##### Studio C: (4 semesters required)\*\*

Calligraphy I, II  
Ceramics I, II, III, IV  
Handloom Weaving I, II, III, IV, V, VI  
Jewelry and Metalwork I, II, III, IV  
Moveable Image I, II, III, IV  
Photography I, II, III, IV, V, VI  
Studio Photography  
Textile Design I, II, III, IV, V, VI  
Typography III, IV  
All Fine Arts Electives  
Design and Structure I, II (TT)  
Textile Technology I, II (TT)  
Fashion Illustration I, II

\*Studio A/B courses are Support Courses for Majors and should be taken in consultation with advisors in the specific areas.

\*\*Studio C courses are all courses which were previously listed as Studio electives from the various Studio Departments.

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## Textile Design Courses

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### DE 271 • 3 credits

#### Textile Design I

The second year textile design major is introduced to printed textile design. The student is given practice in rendering techniques and printing methods. The course also covers nature study as applied to textile design. Prerequisite: Foundation Courses.

### DE 272 • 3 credits

#### Textile Design II

A continuation of DE 271. Six studio hours. Prerequisite: Foundation Courses.

### DE 371 • 3 credits

#### Textile Design III

Advanced problems in designing patterns on paper for fashion and decorative fabrics is covered. Nature drawing is included, exploring color schemes and surface patterns. Eight studio hours. prerequisite: DE 272.

### DE 372 • 3 credits

#### Textile Design IV

Advanced problems in designing using the silk screen mediums as solution methods. The course includes nature drawing. Eight studio hours. Prerequisite: DE 272.

### DE 471 • 6 credits

#### Textile Design V

A study is made of the more complex problems in designing fabrics for either wovens or prints with emphasis on originality in the chosen area. Twelve studio hours. Prerequisite: DE 371 and 372 or DE 373 and 374.

### DE 472 • 6 credits

#### Textile Design VI

A continuation of DE 471. Twelve studio hours. Prerequisite: DE 471.

### DE 273 • 3 credits

#### Handloom Weaving I

This course gives the student the opportunity to learn the basic principles of weaving on a handloom or experiment in the offloom techniques. He is encouraged to experiment with colors, textures and basic weaves. More advanced weaves are explored as the student gains in skills and techniques. Six studio hours.

### DE 274 • 3 credits

#### Handloom Weaving II

A continuation of DE 273. Six studio hours.

### DE 373 • 3 credits

#### Handloom Weaving III

This is an advanced course giving the student opportunity to develop original designs on the loom and off the loom. Further study is involved in advanced weaves, rug and tapestry techniques, soft sculptures and fiber wovens. Six studio hours. Prerequisite: DE 273 and DE 274.

### DE 374 • 3 credits

#### Handloom Weaving IV

A continuation of DE 373. Emphasis is placed on experimentation. Six studio hours. Prerequisite: DE 373.

### DE 473 • 6 credits

#### Handloom Weaving V

Investigation of advanced 8-12 harness handloom weaving techniques and aesthetics used in designing to meet the quality mass-market industry, as well as the one-of-a-kind handwoven object. Individual research into various historical and technical aspects of weaving, color and design. 12 studio hours. Prerequisite: DE 374.

### DE 474 • 6 credits

#### Handloom Weaving VI

An in-depth continuation of Handloom Weaving V. 12 studio hours. Prerequisite: DE 473

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## Design Courses

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### DE 211 • 3 credits

#### Color, Materials and Methods

This is a second-year course for students in visual design, textile design, and art education. The use of color in many different ways and with a great variety of materials and surfaces is the basis of the program. Methods, which will be taught concurrently, is concerned with achieving the drawn image by means of varying techniques and media.

### DE 213 • 3 credits

#### Calligraphy I

The fundamentals of the alphabet as a language system and its graphic implications. Projects emphasize the visual relationships of formal and informal letterforms as affected by natural rhythms, line shape, texture and the integration of images and decoration.

### DE 214 • 3 credits

#### Calligraphy II

A continuation of DE 213, Calligraphy I: an in-depth study of the five basic alphabet styles through design problems.

### DE 215 • 3 credits

#### Structural Representation

This course is meant to provide the student with experience in handling volume and spatial arrangements. It deals with projection drawing of all kinds and touches upon three-dimensional model making.

### DE 251 • 3 credits

#### Visual Design I

The student, in taking this course, has elected to explore the world of the designer. He/she is introduced to all phases of communications design, touching on traditional as well as contemporary methods.

### DE 252 • 3 credits

#### Visual Design II

A continuation of DE 251.

### DE 351 • 3 credits

#### Visual Design III

The student should now be able to analyze a design project to some extent and produce a satisfactory communications design. Various aspects and formats will be examined. Considerable emphasis will be placed on finish and on the correct handling of the creative intention. Prerequisite: DE 251, 252.

### DE 352 • 3 credits

#### Visual Design IV

A continuation of DE 351.

### DE 451 • 6 credits

#### Visual Design V

This course prepares the student for professional work in the Visual Design field. Assignments in a variety of directions: book design, packaging, public relations, environmental elements, communications problems and systems design.



**DE 452 • 6 credits**

**Visual Design VI**

A continuation of DE 451.

**DE 281 • 3 credits**

**Photography I**

A basic survey is made of the theory of black and white photography. Darkroom experience includes the development of film, contact and enlargement printing. One lecture hour, three laboratory hours.

**DE 282 • 3 credits**

**Photography II**

A continuation of DE 281, with emphasis on development of printing skills, professional presentation, and exploration of contemporary means of photographic expression. One lecture hour, three laboratory hours.

Prerequisite: DE 281.

**DE 381 • 3 credits**

**Photography III**

The development of a personal approach to photography as well as application of techniques used in applied photography are integrated in a series of projects involving multiple image printing, use of high contrast film, and large format camera work. The zone system is studied in depth. One lecture hour, three laboratory hours.

Prerequisite: DE 282.

**DE 382 • 3 credits**

**Photography IV**

A continuation of DE 381 with further exploration of experimental techniques and their application to applied and personal photographic statements. A brief survey is made of the history of photography. Two lecture hours, three laboratory hours.

Prerequisite: DE 381.

**DE 481 • 6 credits**

**Photography V**

An intensive study is made of advanced techniques used in contemporary photography. Emphasis is placed on the development of a personal photographic approach coupled with professional esthetic standards. Three lecture hours, six laboratory hours.

Prerequisite: DE 382.

**DE 482 • 6 credits**

**Photography VI**

A continuation of DE 481 with an emphasis placed on the preparation of a professional photographic portfolio. Three lecture hours, six laboratory hours.

Prerequisite: DE 481.

**DE 385 • 3 credits**

**Studio Photography**

A studio elective course open to students who have had the courses Photography I, II, and III.

The course deals with the professional methods of photographing two and three dimensional objects in black and white and color. Lighting techniques utilizing daylight, quartz lights and electronic flash are studied. Film formats from 35mm to 4x5 are used to produce prints and transparencies. Effective use of simple studio props are studied. Laboratory three hours; studio demonstrations three hours; unsupervised studio, field works, print and slide preparation three hours.

**DE 221 • 3 credits**

**Illustration I**

An introductory course in illustration focusing on drawing and composition which relates to the special needs of the illustrator; an exploration of illustration concepts as well as the tools,

techniques and surfaces which are of primary concern to the illustrator.

**DE 222 • 3 credits**

**Illustration II**

A continuation of DE 221 including analytical and on-location drawing, a review of the procedures used in gathering reference material for illustration, and a slide survey of the History of Illustration.

**DE 321 • 3 credits**

**Illustration III**

This course is structured to acquaint students with the wide range of the illustration field; specialized areas are explored through projects of various focus.

**DE 322 • 3 credits**

**Illustration IV**

A continuation of DE 321 including a survey of outstanding contemporary illustration.

**DE 421 • 6 credits**

**Illustration V**

This advanced level course is aimed at developing the student's individual strengths and interests. Efforts are made to engage students in projects which will result in their illustrations being reproduced.

**DE 422 • 6 credits**

**Illustration VI**

A continuation of DE 421. Through individual conferences between student/instructor an emphasis is placed on building portfolios which provide a clear and strong indication of the student's capabilities.

**DE 323 • 3 credits**

**Fashion Illustration I**

Learning to draw the fashion figure is the major thrust of

this course. Includes intensive drawing from clothed models, fashion photos and prototypes. Rendering skills to be developed by working from a wide variety of clothing and accessories as well as through experimentation with painting and illustrational techniques. Includes female, male and children's fashion illustration. Attention will also be given to the composition of the total fashion ad, with layout assignments dealing with the relationship of figure to type. Prerequisites: AR 110, AR 112.

**DE 324 • 3 credits**

**Fashion Illustration II**

Refining the ability to draw fashion figures and compose the fashion ad. The variety of types of clothing is expanded. Preparing work for linecut, halftone and color separation reproduction. Male, female, children's and accessories illustration. Prerequisites: AR 110, AR 112.

**DE 253 • 3 credits**

**Typography I**

This course is meant to give the design student a wide understanding of typography in relation to communications. Exercises in basic typography are combined with field trips to plants and businesses involved in the graphic arts. As the course progresses there is increasing emphasis on the creative aspects of typography.

**DE 254 • 3 credits**

**Typography II**

A continuation of DE 253.



**DE 353 • 3 credits****Typography III**

The student explores projects in typography on an advanced professional level. He/she will be prepared to function in publishing, advertising and typographic design.

**DE 354 • 3 credits****Typography IV**

A continuation of DE 353.

**DE 383 • 3 credits****Movable Image: Slide and Sound**

An introduction to the planning, preparing and producing of slide sequences for multi-image and multi-projector shows. The course will cover the specific technology, writing, sequencing and editing. It will deal with shows that inform, educate and entertain.

**DE 483 • 3 credits****Movable Image: Animation**

An introduction to media of running graphic images. The subject matter in the course will include discussions on time, space and light within the framework of graphic images. The student will be introduced to the pragmatics of storyboarding, preparation of flatwork and producing a small animated film on the animation stand.

**DE 484 • 3 credits****Movable Image: Film**

This course is a continuation of DE 383 and DE 483 and will prepare students for the filming of a short subject in 16mm color or black and white. The experimental character of this medium will be stressed.

**DE 384 • 3 credits****Movable Image: Video**

This course finishes the 4 semester sequence. The

student will be trained to use and understand the electronic technology and combine slide and sound, animation, film, plus live video segments into a short production.

**DE 317 • 3 credits****The Art of the Book**

Experimental approaches to bookmaking is emphasized. Exploring conceptual attitudes will be combined with developing skills in bookbinding, papermaking, assorted printed processes and other related techniques. Examples of contemporary books will be shared. Prerequisite: Junior standing any art major.

**DE 331 • 3 credits****History of Poster**

A lecture course covering the history of the contemporary poster as an art form. Extensive exploration of the artistic influences of artists on this modern art form will be illustrated through the use of slides and illustrations.

**DE 216 • 3 credits****Dimensional Design**

For Art, Engineering, and other students wishing to pursue projects in Public Art Proposals, - architecture/sculpture/environmental. Multidisciplinary concept of design, technical drawing, site study, perspective renderings, structural and fabrication techniques explored. Prerequisite: DE 215 or permission of instructor.

**DE 291 • 3 credits****Ceramics I**

An introduction to ceramic stoneware techniques and processes, including assigned reading, hand building, wheel throwing, glazing and firing. Prerequisite: Sophomore

standing or permission of department.

**DE 292 • 3 credits****Ceramics II**

A continuation of DE 291.

**DE 391 • 3 credits****Ceramics III**

A more advanced workshop course including refinement of technical and formal approach, glaze formulation, experimentation with clay bodies, firing techniques, sculptural processes, etc.

**DE 392 • 3 credits****Ceramics IV**

A continuation of DE 391.

**DE 491 • 6 credits****Ceramics V**

An advanced course in ceramics stressing individual concentration with processes of construction, throwing, glazing and firing.

**DE 492 • 6 credits****Ceramics VI**

A continuation of DE 491.

**DE 293 • 3 credits****Jewelry and Metalwork I**

This course is designed to give the student a working knowledge of the tools and techniques involved in the making and designing of jewelry. Basic skills in cutting, soldering and working with precious metals eventually lead to incorporating stones and gems in original pieces.

**DE 294 • 3 credits****Jewelry and Metalwork II**

A continuation of DE 293. with greater emphasis on the design and execution of original work. Technical skills are developed further as the student works in increasingly complex techniques.

**DE 393 • 3 credits****Jewelry and Metalwork III**

Casting and enameling are introduced as further exploration is carried out in the methods involved in the designing and fabrication of objects in metal. The student is encouraged to investigate original ideas of expression while working with the various materials available to the metal craftsman.

**DE 394 • 3 credits****Jewelry and Metalwork IV**

A continuation of DE 393.

**DE 293, 294, 393, 394**

A four-semester sequence which can be started in any semester — fall or spring — with each semester being prerequisite for the next. No prerequisite for Jewelry and Metalwork I

**DE 395 • 3 credits****Enameling**

A course for the advanced jewelry student covering the basic techniques of enameling on copper and silver. Included are color experimentation as well as cloisonne, plique-a-jour, basse-taille and related enameling processes. Prerequisite: DE 293, 294.

# Art History

## Faculty and Fields of Interest

**Magali Carrera** • ancient Mexico and Peru and traditional tribal art of Africa, America and Oceania

**Pearlee Freiberg** • Renaissance, baroque and eighteenth century art

**Giorgio Galansino** • nineteenth and twentieth century modern movements

**Thomas Puryear (chairperson)** • ancient and medieval art and architecture

Art History is the study of the visual arts, architecture, sculpture, painting, and the many crafts which often blend imperceptibly into the domain of the fine arts. Art History offers an understanding and appreciation of mankind's diverse visual experience. Such study invariably leads to an examination of the conditions which attend creation, the confluence of political, sociological, and intellectual events which helped to shape not only art, but the whole of civilization.

The major program prepares students who may wish to

pursue advanced work in one of the specialized areas of Art History, but Art History is also advantageous for art students, and liberal art students, particularly those who are interested in interdisciplinary relationships.

The Art History major offered by SMU provides a groundwork which enables the graduate to enter the job market with skills which are equal to those of the traditional liberal arts graduate. The added advantage of a visual and critical capability which only art historical studies provide sets the art historian apart.

## Art History Major Program

First Year		Semester Credits:	First	Second
A-H 101	Ancient and Medieval Art		3	
or	or			
A-H 102	Renaissance to Modern Art			3
ENG 101 102	Freshman English		3	3
	* Social Science Elective		3	3
	History or Philosophy Elective		3	3
	Science Elective		3	3
			15	15

Second Year		Semester Credits:	First	Second
	Art History Elective		3	3
	** Literature Elective		3	3
	Free Elective		3	3
	History or Philosophy Elective		3	
	Art History Elective			3
	Social Science Elective		3	3
			15	15

Note: A program of cognate course work will be filed with the student's advisor for approval in the second semester of the sophomore year. In the case of transfer students, this will be done at the time of admittance to the University.

Some areas normally considered as related course work to Art History are:

Studio Art  
Art Education  
Music  
Drama  
Foreign Languages  
Literature  
History  
Philosophy  
Sociology-Anthropology

Other subjects may be accepted as related course work in consultation with the student's advisor.

Foreign Language courses are encouraged, particularly for those students who intend to pursue graduate studies.

Third Year		Semester Credits:	First	Second
	Art History Elective		3	3
	Cognate Course Elective		3	3
	Free Elective		3	3
	Art History Elective		3	3
	Cognate Course Elective		3	3
	Free Elective			3
			15	18
Fourth Year		Semester Credits:	First	Second
	Art History Elective		3	3
	Cognate Course Elective		3	3
	Free Elective		3	3
	Cognate Course Elective		3	
	Art History Elective			3
	Free Elective		3	3
			15	15

Total: 123 credits.

Note: One Art History Seminar is required.

\*Math, Psychology, Sociology-Anthropology, Political Science, Economics

\*\*English Literature or Literature in Translation



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## Art History Courses

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### A-H 101 • 3 credits

**Ancient and Medieval Art**  
This course constitutes a survey of Prehistoric, Egyptian, Mesopotamian, Greek, Roman, Byzantine, Carolingian, Romanesque and Gothic Art, and is designed to familiarize the student with the visual and literary vocabulary of art.

### A-H 102 • 3 credits

**Renaissance to Modern Art**  
This course, a continuation of A-H 101, which however, need not be taken in sequence, surveys the painting, sculpture and architecture of the Renaissance in Italy and Northern Europe, 16th century Mannerism, the Baroque and Rococo periods and the 19th century to Impressionism.

Note: A-H 102 is a prerequisite for all courses dealing with 19th and 20th century art. Permission of the instructor is suggested for all other courses above the 200 level if the student has not completed either A-H 101 or A-H 102.

### A-H 300 • 3 credits

#### **Art and Architecture of the Ancient Near East**

This course will survey the art and architecture of the cultures which developed between the Tigris and Euphrates Rivers from 8,000 B.C. to 400 A.D.

### A-H 303 • 3 credits

#### **Greek Art**

This course will trace the development of styles of Greek architecture, sculpture, and painting. Emphasis will be placed on the definition of Classicism and the variety of its expression in the fifth and fourth centuries B.C.

### A-H 306 • 3 credits

#### **Roman Art**

This course will attempt to define the Roman qualities of Roman Art, in contrast to its Etruscan, Greek and Hellenistic forebearers. The development of painting, sculpture and architecture will be traced to the time of Emperor Constantine, ca. 325 A.D.

### A-H 311 • 3 credits

#### **Early Christian and Byzantine Art**

The changes in style in architecture, painting and sculpture which separate the art of the Late Roman Empire from the Medieval period will occupy the attention of the first third of this course. The last two-thirds will concern Merovingian, Irish and Carolingian Europe and the parallel development of Byzantine styles up to the year 1000.

### A-H 315 • 3 credits

#### **Romanesque Art**

This course will deal with architecture, painting and sculpture in western Europe from about the year 1000 through the 12th century.

### A-H 316 • 3 credits

#### **Gothic Art**

A course concerning the architecture, sculpture, manuscript painting and stained glass from the beginnings of the Gothic in England, Normandy, and the Isle de France to the internationalization of the style in the 13th and 14th centuries.

### A-H 321 • 3 credits

#### **Early Northern Painting**

The development of panel painting in France, Flanders, and Germany, from 1400 to the early years of the 16th century will constitute the

major interest of the course, but close attention will also be paid to miniature painting, engraving and the beginnings of printing in this period.

### A-H 325 • 3 credits

#### **Italian Renaissance Art**

A study of the painting, sculpture and architecture in Italy from ca. 1400 to 1520.

### A-H 328 • 3 credits

#### **Venetian Painting**

A survey of painting in Venice from the 15th century through the 18th centuries. Emphasis will be placed on the 16th century.

### A-H 329 • 3 credits

#### **Portraiture**

A survey of European and British portraiture in painting, graphics, and sculpture from the Renaissance through the 19th century.

### A-H 336 • 3 credits

#### **Baroque Art in Italy and France**

A study of painting, sculpture and architecture in Italy and France during the 17th century.

### A-H 337 • 3 credits

#### **Baroque Art in Flanders, Holland and Spain**

A survey of 17th century painting in these countries with an in-depth study of Rubens and Rembrandt.

### A-H 338 • 3 credits

#### **British Art**

A survey of painting, architecture and sculpture in the context of British culture from the 16th century through the 19th century.

### A-H 339 • 3 credits

#### **18th Century European Painting**

A study of the 18th century European painting, principally French and British.

### A-H 340 • 3 credits

#### **Late 18th Century Art in Britain and France**

An in-depth study of British and French painting, sculpture and architecture from 1750 to ca. 1825 in the context of the academy, historicism, classicism, sensibility and the sublime.

### A-H 341 • 3 credits

#### **19th Century European Painting**

The movements and counter-movements which produced Neoclassicism, Romanticism, Realism and Impressionism are traced from the late 18th century to the 1870's in England, France, Spain and Germany.

### A-H 342 • 3 credits

#### **Impressionism to Symbolism (1860-1905)**

Painting in France from Monet to Redon.

### A-H 343 • 3 credits

#### **Cubism**

An investigation of this crucial movement, its forebears and late-comers in European and American art.

### A-H 345 • 3 credits

#### **Development of Modern Painting**

A study is made of 20th century painting, beginning with the contributions of the Post-Impressionist generation in the late 19th century.

### A-H 346 • 3 credits

#### **Development of Modern Sculpture**

After a brief introduction to the academic sculpture of the 19th century, this course examines modernist innovations in sculpture from Rodin to David Smith.

**A-H 347 • 3 credits**  
**Dada and Surrealism**

A detailed investigation of these "irrational" movements in Modern Art (1915-1947) in Switzerland, Germany, France, Italy and the U.S.A. The influence of both Dada and Surrealism on much contemporary art will be examined.

**A-H 348 • 3 credits**  
**Realisms**

A study of the concept of Realism in 19th and 20th century art.

**A-H 349 • 3 credits**  
**Development of Modern Architecture**

A study of world architecture from the mid-19th century to the present.

**A-H 351 • 3 credits**  
**American Architecture to 1900**

A study of architecture in North America from the first settlers to the early work of Frank Lloyd Wright.

**A-H 356 • 3 credits**  
**Art Since 1945**

A study of modern movements in painting and sculpture since World War II.

**A-H 360 • 3 credits**  
**Survey of Primitive Art**  
An introduction to the arts of Africa, Oceania and the Americas. The course will emphasize method, theory and cross-cultural analysis.

**A-H 361 • 3 credits**  
**Arts and Cultures of Africa**  
Survey of the arts, crafts and architecture of Africa. Historical developments, stylistics and aesthetics will be investigated within a sociocultural framework.

**A-H 363 • 3 credits**  
**Pre-Hispanic Art**

An examination of the arts and architecture of Mexico and Central America before the arrival of the Spanish.

**A-H 364 • 3 credits**  
**Art and Culture of Ancient Peru**

A survey of art and architecture of the high cultures of Peru from 5000 B.C. to 1500 A.D.

**A-H 365 • 3 credits**  
**North American Indian Art I**  
Survey of the arts, crafts and architecture of the Native American populations in the Southwest, California and the Plains.

**A-H 366 • 3 credits**  
**North American Indian Art II**  
This course will investigate the arts and crafts of the Northwest Coast, the Arctic area, the Eastern woodlands, and the Southeast.

**A-H 367 • 3 credits**  
**Oceanic Art**  
Detailed Survey of the arts and crafts of the Pacific Islands and Australia. Historical and cultural determinants will be examined.

**A-H 369 • 3 credits**  
**Visual Symbols and Myth**  
A study of the underlying structure and content of visual symbols, myth, and ritual and an analysis of these systems established by man to cope with unknown forces of nature. Identical to SO 369 and taught by a team of Art History and Sociology faculty.

**A-H 390 • 3, 6 credits**  
**Independent Study**  
Intended to allow students to examine in depth a particular

aspect of the history of art. Independent study is open to students who have had a minimum of four Art History courses. A proposal of study must be submitted to the instructor prior to enrollment.

**A-H 490 • 3, 6 credits**  
**Independent Study**  
Same as above.

**A-H 900 • 3, 6 credits**  
**Contract Learning**

**Seminars**

Students will deal with bibliography, research methods, and various approaches to Art History. They will pursue extensive research which will be presented to the class. Consent of instructor.

**A-H 440 • 3 credits**  
Problems in Modern Art: Art, 1945 to the Present.

**A-H 441 • 3 credits**  
Problems in Modern Art: The Cubist Epoch

**A-H 442 • 3 credits**  
Problems in Modern Art: 1900, the Symbolist Epoch

**A-H 450 • 3 credits**  
Problems in American Art: New England Architecture

**A-H 460 • 3 credits**  
Problems in Primitive Art: Defining Male and Female Roles in Tribal Arts.

**A-H 461 • 3 credits**  
Problems in Pre-Columbian Art

**A-H 481 • Literature of Art:**  
Iconography

**A-H 482 • Literature of Art:**  
Artist's Biographies



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## Faculty and Fields of Interest

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**Robert Adams** • chorus, composition, electronic music, music theory

**Kerry Carlin** • class piano, music history

**Eleanor Carlson (chairperson)** • piano, music history

**Jacqueline Bazinet Cobert** • voice, opera

**Josef Cobert** • flute, music history

**Gene Crisafulli** • trumpet, stage band, concert band, music theory

**Bobby Greene** • jazz studies

**Vincent Luti** • theory, composition

**Barbara H. Noel** • musicology

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## Music Major

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The Bachelor of Music degree allows rigorous study in either applied music (instrumental or vocal) or theory/composition. Both tracks include a core curriculum of music theory, history, musicianship, and functional piano as well as the opportunity for more specialized studies. All candidates must pass an entrance audition and take an advisory exam to determine their potential and background in music. Candidates are expected to have some facility on their instrument and, especially in the case of theory/composition candidates, to have some preparation in fundamental concepts of music theory.

Graduates of the major program have a variety of avenues open to them, from teaching and performing to advanced study and careers in related fields. The department is also strongly interested in developing interdisciplinary programs for those whose needs are best met by a liberal arts background with a concentration in music, including education.

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## Music Minor

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A special music minor program is offered to SMU students. The program is designed for talented students who desire an opportunity to develop their musical abilities. It is open to all SMU students who meet the music entrance requirements. This program will enable students who are majoring in other areas to expand their music skills in a systematic, well-rounded manner.

Students may choose an area of concentration such as applied studies (piano, voice, flute, etc.) theory/composition, or jazz studies. Each student's program is then built around this area of concentration. In addition, certain basic courses are required of all students. Students demonstrating special abilities or interests may, with approval of the full music faculty, develop individualized programs through independent study. Graduating seniors who have successfully completed the special music minor program will have this fact stated on their diplomas.

Students in the Applied-Studies track will have their progress monitored by the department in semester-end juries. For promotion, students must meet minimum criteria for each level (information on these criteria and other departmental regulations is available from the department office). Theory/Composition students may fulfill the applied study requirement during their junior and senior years. For promotion to upper division standing in Theory/Composition, a sophomore exam must be passed. The exam will consist of a review of class work submitted by the student and the creation of a short musical composition on a given set of criteria.



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Applied lessons are open to all qualified SMU students subject to the following priority:

1. Continuing Music Majors and Minors in good standing or on probation and new Music Majors and Minors (matriculating students).
2. Continuing non-majors and non-minors in good standing and Music Majors and Minors on a second Instrument.
3. Non-majors and non-minors who wish to begin studies (subject to a qualifying audition).

Students who wish to take instruments not currently offered at SMU may do so with an approved instructor. Credit may be given by the department. The same entrance and promotional criteria apply. The student should be prepared to cover the cost of these lessons.

Good standing is defined in the following manner:

1. Majors: Lower division student must be making steady progress in the Theory sequence, Music Skills, and Class Piano, subject to advanced placement; upper division students should be

completing two academic music courses per semester or finishing the core curriculum in a timely manner. The student may petition the department for waiver of these minimum standards.

2. Minors: Declaration as a music minor must be filled through the registrar; in addition, steady progress must be made to complete the minor (at least three credits of non-performing coursework per semester in addition to applied-studies credit). The student may petition the department for waiver of these minimum standards.

Once a Music Major is accepted into an applied-studies track, the student is assured of continuation if a minimum of 2.0 is obtained each semester in the applied lesson and the student is otherwise in good standing. Receiving less than a C grade but still passing will result in the student being placed on probationary status for one semester, at the end of which time the student's progress will be reviewed by departmental jury and the applied instructor. Should the student's progress be less

than expected for his/her length of study, applied lessons will be terminated. It will be incumbent on the student either to make up the work, find another applied track, petition successfully for entry to the theory/composition track, or find another major program at SMU. A student who gets a failing grade may readmission for applied lessons on a space-available basis.

Non-majors should be aware that continuation is on a space-available basis, though, where at all possible, the department will allow non-majors to continue their studies without interruption.

The Music Department requires a minimum acceptable grade of C (2.0 on the 4-point system) for all music courses that will be included in fulfillment of music major and minor requirements.

Bachelor of Music Degree Requirements

Applied Studies: 124 credit hours

Theory/Composition: 122 credit hours

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### Distribution Requirements

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Freshman English: 6 credit hours (ENG 101, 102)  
All first-year students are required to take Freshman English, a two-semester course in the basic skills of communication, written and spoken.

Foreign language: 6 credit hours

Credits may be taken in Italian, French, or German. The requirement is to be fulfilled by a year in one language.

Natural Science: 3 credit hours

Physics of Music is recommended. Courses may be taken in the Biology, Chemistry and Physics Department; or other departments with approval of Music Department Chairperson.

Social Science: 3 credit hours  
Courses may be taken in Economics, Political Science, Psychology, or Sociology.

Humanities: 9 credit hours  
3 credits in History or Art History and 6 additional credits in those fields or Literature (either English or a Foreign language) or Philosophy. Applied students in voice must include in this latter category one course in Linguistics.

### Music Major Core Curriculum

First Year		Semester Credits:	First	Second
	Applied Studies*		3	3
MUS 111	Harmony I		3	
MUS 113	Counterpoint I			3
MUS 109 110	Music Skills I, II		2	2
MUS 165 166	Class Piano I, II		1	1
	Ensemble		1	1
ENG 101 102	Freshman English		3	3
	Distribution**		3	3
		Total Credits:	16	16

\*Theory/Composition students may substitute 6 credit hours of distribution with Music Department approval.

\*\*History or Art History recommended as preparation for Survey of Western Music (MUS 203, 204).

Second Year		Semester Credits:	First	Second
	Applied Studies*		3	3
MUS 211	Harmony II		3	
MUS 212	Twentieth Century Theory			3
MUS 209 210	Music Skills III, IV		2	2
MUS 203 204	Survey of Western Music		3	3
MUS 265 266	Class Piano III, IV		1	1
	Ensemble		1	1
	Distribution		3	3
		Total Credits:	16	16

\*Theory/Composition students may substitute 6 credit hours of Electronic Studio Techniques with Music Department approval.

### Third and Fourth Years - Applied Track

Applied students must perform in a student recital during the sophomore year, give a joint recital during the junior year, and perform a full recital during the senior year. All students performing junior and senior recitals will be required to play a preliminary recital permission audition before they may schedule their recitals. The audition will be played for the applied faculty and must be scheduled between October 1 and April 15. All recitals must be scheduled while classes are in session (before Final exam period).

	Credits
Applied Studies	16
Music Electives*	14
Ensemble (1 ensemble each semester)	4
Distribution	9
Free Electives	9
Music History (period courses)	6
Senior Recital	2

\*Music Electives may be chosen from non-applied 300- and 400- level courses, and MUS 242. Voice students should include MUS 245 and 246 (Applied Vocal Repertoire).

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### Third and Fourth Years - Theory/Composition Track

Theory/Composition students must pass a Sophomore Exam for promotion to upper division standing. The exam will consist of a review of class work submitted by the student and the creation of a musical composition on a given set of criteria. A minimum of 2.0 grade average in music major courses will also be expected for promotion. Successful candidates will be able to complete the applied studies requirement if it has been deferred during the first two years of study.

			Credits
MUS 333	334	Theory/Composition	3
MUS 313		Orchestration	3
		Ensemble (one each semester)	4
MUS 223	224	Electronic Studio Techniques	6*
MUS 411		Schenkerian Analysis	3
MUS 412	or	Form and Analysis Seminar	3
		Music Elective	12
		Distribution	9*
		Free Electives	9
		Music History Period Courses	6

\*If the Applied Studies requirement (12 credit hours) was deferred in the first two years, then the appropriate courses should be deleted and replaced with Applied Studies.

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### Music Minor Program of Study

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#### Applied Emphasis

For students whose area of concentration is piano, voice, or orchestral instruments.

Course	Credits Per Semester	Required Semesters	Total Credits
Applied Voice/Instrument*	3	4	12
Harmony I and Counterpoint I	3	2	6
Music Skills	2	2	4
Survey of Western Music	3	2	6
Class Piano**	1	2	2
			<b>Total credits: 30</b>

\*Students may continue to take applied studies all four years if they wish to do so.

\*\*Not required of piano students or other students able to pass the piano proficiency exam. A piano proficiency exam must be passed to receive the music minor certificate. Additional levels of class piano may be taken for academic credit, but only two may be applied to the music minor requirement.



**Recital Requirement**  
Students with applied emphasis are required to participate in at least one student recital in order to receive the music minor certificate. This recital must be scheduled with the approval of the applied instructor.

**Ensemble Requirement**  
In order to receive the music minor certificate, students with applied emphasis are required to participate in an ensemble on their applied instrument or voice during at least one semester. It is recommended that they participate in other ensembles as often as possible.

**Non-applied Emphasis**  
For students whose area of concentration is jazz studies or theory/composition.

Course	Credits Per Semester	Required Semesters	Total Credits
Applied Voice/Instrument*	3	2	6
Harmony I and Counterpoint I	3	2	6
Music Skills	2	2	4
Survey of Western Music	3	2	6
Class Piano**	1	2	2
Music Concentration*** Jazz Studies			6
Theory/Composition			
<b>Total credits: 30</b>			

\*Students may continue to take applied studies all four years if they wish to do so.

\*\*Not required of piano students or other students able to pass the piano proficiency exam. A piano proficiency exam must be passed to receive the music minor certificate. Additional levels of class piano may be taken for academic credit, but only two may be applied to the music minor requirement.

\*\*\*Jazz concentration must include Jazz Theory and Improvisation for 3 credits and Afro-American Music for 3 credits.

\*\*\*Theory/Composition concentration must include Harmony II and Twentieth Century Theory for 6 credits.

#### Music Courses

##### Courses Primarily for Non-majors

**MUS 101, 102 • 3 credits**  
**Introduction to Music**  
This course is designed to present a basic music vocabulary and develop intelligent discrimination in the listener through study and analysis of outstanding works from Gregorian Chant to the present. Emphasis is also placed on the relationship of the historical development of music to parallel movements in art, drama, philosophical thought, etc.

**MUS 107 • 3 credits**  
**Fundamentals of Theory**  
A course designed for beginners with no theory background. The study of the elements of music, systems of sounds, pitch, meter, rhythm, note values, dynamics, manuscript, etc. Identification, nomenclature, and performance will be carried out through a programmed text, lecture and practical application through singing and playing. This is a foundation course for further courses in theory and composition.

**MUS 108 • 3 credits**  
**Materials of Music**  
This course takes a comprehensive view of music in that it explores concepts of style and structure, and develops aural perception as well as the ability to write music. It is intended for those who already have some performance ability in music and are able to read music and, although it is not part of the Major or Minor programs in Music, it is the preferred vehicle for those preparing themselves for further work in music.

Prerequisite: Ability to play an instrument and read music.

**MUS 115 • 3 credits**  
**Jazz Theory and Improvisation**

Two hours of class theory and a one to two hour practicum in jazz improvisation techniques. A course covering the study of jazz scales, chord structures, nomenclature and progression patterns. There will also be some elementary arranging. The theoretical studies will be put into practice in weekly performance sessions.  
Prerequisite: MUS 111, MUS 113, and instrumental proficiency.

**MUS 229 • 3 credits\***  
**Survey of the Symphony**  
The development of the symphony as traced from the eighteenth century to the present day.

**MUS 231 • 3 credits\***  
**Beethoven**  
Knowledge of the genius through his compositions.

**MUS 232 • 3 credits\***  
**Johann Sebastian Bach**  
A study of the great Baroque master through historical and musical examination.

**MUS 235 • 3 credits**  
**Survey of American Music**  
A genesis and growth of American music from its inception to the present, including popular idioms.

**MUS 238 • 3 credits\***  
**Music and the Related Arts: Parls (1890-1930)**  
This course will emphasize the music of the period, but will also attempt to investigate its relationship to the other arts. Debussy, for example, was labeled an

impressionist because of the circumstances linking him to the impressionist painters. Debussy however, was also influenced by art nouveau and by the symbolist poets. Other styles to be explored will include Satie's connections with dadaism and surrealism and Stravinsky's close alliance with ballet. Although listening to music will be of primary importance, art slides, poetry readings, and films of ballets will be used as much as possible. Guest lecturers will also be called upon as the occasion arises.

**Courses Primarily for Majors and Minors**

**History**

**MUS 127 • 3 credits\***  
**Survey of Choral Literature**  
A specialized appreciation course that examines music for group singing — Gregorian chant, medieval Mass and Motet, Renaissance madrigals, motets, Baroque Oratorio, Bach Cantatas, Opera Choruses of Monteverdi, Purcell, Gluck, Mozart, Verdi, twentieth century works with unusual harmonic effects, etc. Lectures, listening, study and, where possible, live demonstrations will constitute the work.

**MUS 203, 204 • 3 credits**  
**Survey of Western Music I, II**  
A course designed to give a broad view of music from the middle ages to the present. Listening and analysis will be stressed, but historical background will also be discussed.  
Prerequisite: MUS 107 or equivalent and MUS 111, 113 (may be taken concurrently)

**MUS 242 • 3 credits**  
**Afro-American Music**  
A general survey of Afro-American music in the U.S. traced from its origins to the present. The course is intended to introduce the student to the vast and rich expanses of black musical culture, both from a musical and socio-historical standpoint. The emphasis of the course will be on jazz, its history, and an analysis of the contributions of its major innovative figures.  
Prerequisite: Music 107 or equivalent.

**MUS 337 • 3 credits\*\***  
**Music of the Twentieth Century**  
A study is made in the trends in twentieth century music, embracing analysis of representative works from the period and their relationships to the existing culture.  
Prerequisite: MUS 203, 204

**MUS 339 • 3 credits\*\***  
**Music of the Romantic Period**  
A survey of the masterpieces of Chopin, Tchaikowsky and other nineteenth century composers.  
Prerequisite: MUS 203, 204

**MUS 341 • 3 credits**  
**Music of the Classical Period**  
A study of the major works of Haydn, Mozart and Beethoven.  
Prerequisite: MUS 203, 204.

**MUS 343 • 3 credits\*\***  
**Music of the Baroque Period**  
A study of the major stylistic developments in the music from 1600 to 1750. Monteverdi to Bach and Handel.  
Prerequisite: MUS 203, 204.

**MUS 395 • 3 credits**  
**Seminar in Music History**  
A seminar on selected topics in Music History.  
Prerequisite: MUS 203, 204.

**MUS 491 • 2-6 credits**  
**Advanced Study in Music History**  
Intensive study or research on a special topic in Music History under the direction of a faculty member.  
Prerequisite: MUS 203, 204 and two of MUS 337, 339, 341, 343.

**Theory**

**MUS 109, 110 • 2 credits**  
**Music Skills I, II**  
An intensive study and practice of the reading, performance, notation and dictation of rhythm, meter, intervals, melody, and chords. Useful for all singers and instrumentalists.  
Prerequisite: MUS 107 or equivalent.

**MUS 111 • 3 credits**  
**Harmony I**  
A study of tonal harmony, triads, seventh chords, chord grouping and voice leading. A course in tonal musical theory. Counterpoint may be prerequisite for Harmony I.  
Prerequisite: MUS 107 or equivalent.

**MUS 113 • 3 credits**  
**Counterpoint I**  
A study of the literature and techniques of combining two or more musical lines into a polyphonic texture in the late Middle Ages, Renaissance, Baroque and Twentieth Century periods. A few selected models become the basis for listening and performance. The ad hoc analysis of each for coherent, consistent, internal theoretical practices will become the basis for creating original pieces that imitate the models. Harmony I may be prerequisite for Counterpoint.



Prerequisite: MUS 107 or equivalent and permission of instructor.

**MUS 209, 210 • 2 credits**  
**Music Skills III, IV**  
A continuation of Music Skills I, II.  
Prerequisite: MUS 109, 110.

**MUS 211 • 3 credits**  
**Harmony II**  
A continuation of MUS 111 and 113. Work will be done in such areas as modulation, altered chords, harmonic structure.  
Prerequisite: MUS 111, 113.

**MUS 212 • 3 credits**  
**Twentieth Century Theory**  
The fourth semester of the theory sequence for music majors. An examination of techniques such as those leading to free atonal style, non-tertiary harmony, pandiatonicism, and twelve-tone serialism.  
Prerequisite: MUS 221.

**MUS 223, 224 • 3 credits**  
**Electronic Studio Techniques I, II**  
The study and manipulation of available electronic music equipment to get acquainted with its operation, care and possibilities. Tape techniques and repertoire will also be studied. Lectures, readings, and studio projects are included. Rudimentary music theory knowledge is necessary, though keyboard knowledge is not required.  
Prerequisite: MUS 107 or equivalent.

**MUS 313 • 3 credits\*\***  
**Orchestration**  
An introduction to range, function and transposition of instruments. Scoring projects will be assigned and selected scores will be analyzed.  
Prerequisite: MUS 212.

**MUS 315 • 3 credits\*\***  
**Jazz Arranging**  
A course covering various aspects of arranging charts for swing, jazz, rock, marching, or other pop style bands.  
Prerequisite: MUS 212.

**MUS 333, 334 • 3 credits**  
**Theory Composition**  
A working survey of the theory and analysis of a free and dodecaphonic atonality, neo-modality, quartal harmony and extended tonality in the works of major composers such as Schoenberg, Webern, Ives, Bartok and Hindemith. Students will produce exercises in these techniques and forms. During the second semester, serial, aleatory, textural, cluster, graphic, and other recent procedures in composition will be examined.  
Prerequisite: MUS 212.

**MUS 397 • 3 credits\***  
**Seminar in Music Theory**  
A seminar on selected topics in Music Theory.  
Prerequisite: MUS 212.

**MUS 411 • 3 credits\*\***  
**Introduction to Schenkerian Analysis**  
A study of the techniques derived from the analytic system of Heinrich Schenker for the analysis of tonal music.  
Prerequisite: MUS 212.

**MUS 412 • 3 credits\*\***  
**Form and Analysis Seminar**  
Selected, exemplary works from the pretonal, tonal and post-tonal periods will be examined in detail. Advanced techniques in analysis will be explored. Much of the emphasis will be on deducing internal theoretical structures from the works and comparing and relating these to

traditional theoretical systems.  
Prerequisite: MUS 212, MUS 411 recommended.

**MUS 493 • 2-6 credits**  
**Advanced Study in Composition**  
Intensive composition studies on an individual basis under the direction of a faculty member.  
Prerequisite: MUS 333, 334.

**MUS 497 • 2-6 credits**  
**Advanced Study in Music Theory**  
Intensive study or research on a special topic in Music Theory under the direction of a faculty member.  
Prerequisite: MUS 411 and 412.

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### Applied Music

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**MUS 119 • 3 credits\***  
**Introduction to Vocal Pedagogy**  
A preparatory course in techniques of voice production through demonstration, observation, and active participation.  
Prerequisite: By permission of instructor.

**MUS 149, 150-249, 250 • 3 credits**  
**Applied Voice**  
Weekly private lessons. By permission of instructor.

**MUS 349, 350-359, 360 • 4 credits**  
**Applied Voice**  
Weekly private lessons. By permission of instructor

**MUS 151, 152-251, 252 • 3 credits**  
**Applied Piano**  
Weekly private lessons. By permission of instructor.

**MUS 351, 352-451, 452 • 4 credits**  
**Applied Piano**  
Weekly private lessons. By permission of instructor.

**MUS 153, 154-253, 254 • 3 credits**  
**Applied Orchestral Instruments**  
Weekly private lessons. By permission of instructor.

**MUS 353, 354-453, 454 • 4 credits**  
**Applied Orchestral Instruments**  
Weekly private lessons. By permission of instructor.

**MUS 165-166, 265-266 • 1 credit**  
**Class Piano I, II, III, IV**  
Instruction in piano for the beginning student. No prior musical knowledge is necessary. An electronic piano laboratory will provide the setting for class instruction.  
Upper levels are continuation courses requiring permission of the instructor.

**MUS 169-170, 269-270 • 1 credit**  
**Class Voice I, II, III, IV**  
To bring to the student by observation, demonstration, participation and listening, a comprehension of the basic principles of vocal production and exposure to the vocal repertoire. Included will be vocalization, breathing, language with application to literature. Besides class attendance, students participate in performance.  
Prerequisite: Permission of instructor.

**MUS 180, 181-280, 281-380, 381-480, 481 • 3 credits**  
**Directed Instrumental Studies**  
Under the supervision of a faculty member, a student



may receive credit for a planned program of instrumental study. The student must submit a proposal for the study to the faculty member. His progress will be monitored and a semester-end departmental jury must be passed for successful completion of the course. Prerequisite: Audition and permission of department chairperson.

**MUS 245, 246 • 3 credits**  
**Applied Vocal Repertoire**  
Various interpretive styles of composers in song and music-drama-literature: diction, tempo, phrasing, dynamics, aesthetics, audience rapport. (Piano accompaniment available to students.)

**MUS 485, 486 • 1 credit**  
**Senior Recital**  
This course, under supervision of the appropriate applied faculty member, is required of Music Major students in applied studies. The first semester and part of the second is to be spent in preparation for the recital. Consult with the department for recital guidelines. Prerequisite: Senior standing in applied studies.

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### Performance Ensembles

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The performance ensembles are open to all university students subject to the approval of the director. They may be utilized as free electives and repeated for credit.

**MUS 155, 156-255, 256-355, 356-455, 456 • 1 credit**  
**SMU Chorus**  
Open to students, staff, and faculty. Sight-reading not required but minimal experience in group singing desirable.

**MUS 157, 158-257, 258-357, 358-457, 458 • 1 credit\***  
**Orchestra**  
Qualified students will be permitted to play with the New Bedford Symphony Orchestra or other approved orchestras. Experience will be gained in the performance of works from the standard orchestral repertoire. Permission must be obtained from the applied instructor and department chairperson.

**MUS 159, 160-259, 260-359, 360-459, 460 • 1 credit**  
**Concert Band**  
This course provides an opportunity for qualified students to perform major standards and contemporary band literature. One credit (1) per semester is granted, but it may be cancelled for less than one year's participation at the discretion of the conductor. NOTE: Although anyone may participate in Band Activities, credit is only obtainable if you are a full-time student enrolled in a degree program at SMU.

**MUS 161, 162-261, 262-361, 362-461, 462 • 1 credit**  
**Small Instrumental Ensembles**  
A performing organization devoted to the chamber music repertoire of all stylistic periods.

**MUS 163, 164-263, 264-363, 364-463, 464 • 1 credit**  
**Stage Band**  
Performance of contemporary "Big Band" literature built on the elements of jazz. Prerequisite: By permission of Instructor.

**MUS 167 • 1 credit**  
**Madrigal Singers**  
Performance of madrigals and other works for small chorus from a variety of musical styles. Concurrent participation in MUS 155 is encouraged. Prerequisite: By permission of instructor.

**MUS 247, 248-347, 348-447, 448 • 3 credits**  
**Music Theater Performance**  
How a musical stage composition is developed and generated by a signal plan of composer, conductor, performer and stage director. Learning the language of the theater and the interrelation of drama, theater, opera, and music theater. An opportunity for vocal students and music-drama enthusiasts to participate in production at a high level of performance standards. Prerequisite: By permission of instructor.

\*Offered on a 4-year cycle:  
Consult with department for next scheduled semester.

\*\*Offered on a 2-year cycle.  
Consult with department for next scheduled semester.

# Theater Arts

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**Faculty: Angus Bailey**

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Courses in Theater Arts are concerned with the history and theory as well as the craft of the theater. Presently, the courses are elective to the general student body of the University and can be used to fulfill humanities elective requirements in many degree programs. Theatrical productions are used as workshop experiences for the courses.

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## Theater Arts Courses

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### **TA 100 • 3 credits**

#### **Theater Workshop**

Provides an introduction to theater practice in terms of both acting and stagecraft. It also offers the possibility of working with production in front of audiences and some insight into the complexities of theater management.

### **TA 101 • 3 credits**

#### **Theater Workshop**

A continuation of TA 100.

Prerequisite: TA 100.

### **TA 200 • 3 credits**

#### **Theater Workshop**

Provides those who have already completed the introductory course with more advanced theatrical experiences as well as an opportunity to learn the rudiments of directing. Students in both courses participate in the full seven-production theatrical season at SMU, as well as in the student productions sent to area coffee houses and secondary schools.

Prerequisite: TA 101.

### **TA 201 • 3 credits**

#### **Theater Workshop**

A continuation of TA 200.

Prerequisite: TA 200.



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## Faculty and Fields of Interest

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### Department of Community Nursing:

Judith Clark • maternal-child health nursing

Ora de Jesus • community health nursing

Ann Marie Hedquist • nutrition

Maureen Hull (chairperson) • community health nursing

Teresa Kellermann • psychiatric nursing

Carol Mailloux • maternity nursing clinical specialist

Sonja Peterson • psychiatric nursing

Joan Pisarczyk • community health nursing

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### Department of Institutional Nursing:

Ellen Christian • maternal-child health

Mary Ann Dillon • pediatric nursing

Nancy Dluhy • medical-surgical nursing

Janice McKeachern • rehabilitation

Mary Nanopoulos • medical-surgical nursing

Rita H. O'Neill • rehabilitation

Joyce Y. Passos • medical-surgical nursing

Marjorie Recke • medical-surgical nursing

Ann Tschirch (chairperson) • medical-surgical nursing

The College of Nursing is approved by the Massachusetts Board of Registration in Nursing and accredited by the National League for Nursing.

### The Profession of Nursing

The term "nurse" encompasses a wide range of roles, from the nurse whose task it is to give routine care under direct supervision, to the nurse who has the function to improve care through research, experimentation, writing and teaching.

The College of Nursing offers a four-year program which combines professional nursing courses with a sound background in the humanities, the social sciences, and the physical and biological sciences. Graduates are awarded the Bachelor of Science in Nursing degree, and are eligible to take the examination for licensing as registered nurses. They are also well prepared for graduate study.

The need for graduates of collegiate degree programs in nursing is growing constantly as the demand for health care increases. Employment opportunities are numerous and varied in a rewarding career of service to others. Professional nurses are prepared to practice nursing in a variety of settings, including community agencies, hospitals, public health organizations, industry, and the military.

Using a broad background of scientific principles, graduates are able to: identify and solve nursing problems; plan, administer and evaluate nursing care; direct and coordinate the care given by other nursing personnel and auxiliary workers, develop in collaboration with others,

individual, family and community nursing programs designed to promote health and prevent disease. A sound liberal education is the foundation upon which a nursing major is built. A program for professional nurses is planned to develop personal qualities necessary to expand intellectual and cultural horizons, to live completely in society, and to mature as individuals.

### Objectives

The Southeastern Massachusetts University College of Nursing aims at graduating nurses able to:

1. Give professional nursing care; make a searching nursing diagnosis; set immediate, intermediate and long-range goals for nursing care; plan this nursing care;



Implement this plan or delegate its implementation to the proper person; and, evaluate the adequacy of the whole nursing process.

2. Prevent illness through health education and promote rehabilitation, helping patients to live as fully as possible within the limitations imposed upon them by chronic illness, emotional maladjustment or adverse conditions within the environment.

3. Mobilize, in collaboration with other health professionals, the resources of institutions and of the community, to ensure better nursing care for all those who need it.

SMU nursing students are led toward the achievement of the objectives set by the college through three levels of complexity of nursing care.

At the first level, the simplest, the students are taught to interact with the patient through the successive phases of the nursing process. At the completion of this level, they should have acquired the skills in observation and communication necessary to an assessment of the patient's nursing needs; they should be able to set concrete and realistic goals of nursing care, and to devise a plan of action susceptible of leading to the attainment of these goals. The students are expected to have acquired the basic nursing skills necessary to implement the nursing care plan. Finally, the students should be able to evaluate the outcome of nursing care in the light of goals previously set; they would, then modify the steps of the nursing process accordingly, or set more ambitious goals.

At the second level, the students are taught to interact with the physician and with the patient's family as well as with the patient. The resources afforded by these persons in the patient's behalf are utilized by the nurse at each stage of the nursing process. It is expected that at the completion of this level, the students will be able to give intelligent nursing care to acutely ill patients and to patients needing supportive nursing care, to hospitalized patients and to patients in the homes.

At the third and most complex level, the students are taught to interact with those persons constituting all levels of the hospital structure, and with those responsible for the social and welfare agencies having a bearing upon the distribution of health care. It is expected that at the completion of this level, the students will attempt to mobilize the resources of the health care systems for the improvement of nursing care. The professional nurse should be not only able to give good nursing care, but also be responsible for ensuring that it is made available to those who need it.

### The Curriculum

The first two years are spent pursuing a challenging and diversified general academic program. The last two academic years are spent primarily in studying and practicing nursing, both on the SMU campus and in area health care agencies.

In order to continue in the upper division nursing curriculum, pre-nursing students must complete all required courses during the first two years and achieve at least a 2.0 cumulative grade point average.

During the lower division pre-nursing program, the student completes the following prerequisites to the upper division nursing program:

1. A minimum of 51 credits, distributed as follows:
  - a. English 6 credits
  - b. Humanities 6 credits  
Courses in English, philosophy, History, Art History, Music Appreciation, and Modern Languages fulfill the Humanities requirement.
  - c. Social Sciences 12 credits
 

Psychology	3 credits
Sociology	3 credits

 The balance may be taken in Psychology, Sociology, Political Science, or Economics.
  - d. Sciences 24 credits
 

General Biology	6 credits
Chemistry	6 credits
Anatomy & Physiology	8 credits
Medical Microbiology	4 credits
  - e. Disease & Pharmacology 3 credits
2. A minimum cumulative grade point average of 2.0.
3. A minimum grade of 2.0 (C) in each course in the 51 credits prerequisite to the first clinical nursing course.

### Nursing Curriculum-Lower Division

The nursing curriculum proper is four semesters long, based upon two years of pre-nursing college study, and leads to the Bachelor of Science in Nursing Degree.

First Year	Pre-Nursing Program	Semester Credits:	First	Second
ENG 101 102	Freshman English		3	3
BO 151 152	Fundamentals of Biology		3	3
CH 101 102	Chemistry		3	3
	Social Sciences*		3	3
	Free Electives**		3	3
			15	15
Second Year		Semester Credits:	First	Second
BO 221 222	Anatomy-Physiology†		4	4
223 224				
BO 252	Medical Microbiology†		4	
NU 303	Selected Mechanisms of Disease and Related Pharmacology I†			3
	Social Sciences*		3	3
	Free Electives**			3
	Humanities***		3	3
			14	16

\*Social Sciences. All students must have at least one course of Psychology and one of Sociology. The balance for social sciences requirements (two additional courses) may be taken in Psychology, Sociology, Political Science, Economics, Anthropology.

\*\*Free Electives. Students may elect any available course for which they qualify. Pre-nursing students may wish to select their elective courses so as to be eligible for another major of their choice, should they change their career plans.

\*\*\*Humanities. Courses in English, Philosophy, History, Art History, Music Appreciation and Modern Languages fulfill the Humanities requirement.

†RN's may take the challenge exams.

### Nursing Curriculum - Upper Division

Third Year	Nursing Program	Semester Credits:	First	Second
NU 300 310	Basic Principles of Professional Nursing		12	
NU 305 315	Foundations of Professional Nursing*		(6)	
NU 304	Selected Mechanisms of Disease and Related Pharmacology II†		3	
	Prerequisite: NU 303			
NU 306 316	Parent Child Nursing† or			12
NU 308 318	Nursing the Adult Patient† Free Electives			3
			15	15

Fourth Year				Semester Credits:	First	Second
NU	306	416	Parent Child Nursing or		12	
NU	308	418	Nursing the Adult Patient			
NU	403	413	Advanced Nursing Process**		(6)	
NU	409	419	Nursing Management of Complex Health Problems			14
			Free Electives		3	3
					15	17

Total credits: 122

\*For RN's only in lieu of NU 300-310 (offered in the Division of Continuing Studies).

†RN's may take challenge exams.

\*\*Required for RN's.

#### General Information: Admissions

**To the Pre-Nursing Program**  
Students are admitted to the Pre-Nursing Program through the University Office of Admissions. Applicants to the Pre-Nursing Program, in addition to fulfilling the requirements for all University students, must have had a secondary school program including at least three units of mathematics. The three units of mathematics must include two units of algebra. Two laboratory courses of natural sciences.

**To the Upper Division Nursing Curriculum**  
Students are admitted to the upper division nursing courses after they have successfully completed the lower division pre-nursing course requirements, or transferred credits have been evaluated as equivalent.

Eligibility for admission or progression into the upper division nursing program is determined in the spring semester of each academic year, by the College of Nursing Admissions and

Promotions Committee. For students who enter SMU as Freshmen, this review is done in the sophomore year. Selection is based on the following criteria:  
1. Completion of at least 57 credits, including the 51 prerequisite base.  
2. C (2.0) or better in all courses except free electives.  
3. Cumulative grade point average of at least 2.0.

Selection of qualified applicants for the upper division nursing program may be limited by the availability of faculty and clinical facilities. In the event that the number exceeds the available resources, students will be selected on the basis of academic standing.

The pre-nursing program includes enough free electives to allow students to pursue special interests, or to take additional courses in the humanities, the biological, physical or social sciences. Therefore, students have a solid basis for transfer into a major field other than

nursing, should they choose to do so.

#### Admission of Transfer Students and Registered Nurses

Registered nurses holding either a nursing diploma or an Associate Degree may obtain a B.S. in Nursing degree at the Southeastern Massachusetts University College of Nursing. Registered Nurses and students having attended other colleges must meet the same entrance requirements as those who apply to the pre-nursing program.

Credits (C or better) earned in another college may be accepted as transfer credits after evaluation of official transcripts. Science credits earned more than seven years prior to formal admission into the University cannot be transferred. The required science courses must then be repeated, or verified by examination.



Registered nurses, and other applicants for transfer admission whose transcripts contain course work in the biological sciences which is difficult to evaluate, may write tests offered by the Department of Biology and, if successful, will be excused from the courses in Anatomy and Physiology and Microbiology, and be granted the corresponding credits. In addition, credits may be earned by successfully writing the appropriate CLEP examinations open to all University students.

Registered nurses, after they have successfully completed NU 305 and 315, may challenge NU 306 and 316 and NU 308 and 318 and are given the corresponding credits. NU 303 and 304 may also be challenged.

### **Health Policies**

Students admitted to the nursing program are expected to have a complete physical examination and the appropriate immunizations during the spring preceding their junior and/or senior year clinical courses.

### **Grading Policy**

Each nursing course must be satisfactorily completed with a C (2.0) or better in order to enroll in another nursing course.

Each nursing course consists of two components: 1) theory, 2) practice. The clinical practice component of each course is graded on a "pass/fail" basis. The letter grade earned in the theoretical component for each course is the grade recorded for both components and

submitted to the Registrar. A failure in clinical practice automatically entails the failure of both components of the course.

A student who fails a nursing course may not proceed without having successfully repeated the failed course. Repeating students may enroll in the previously failed course only on faculty recommendation. A failed course may be repeated only once. A subsequent failure in any nursing course will result in dismissal from the College of Nursing.

An overall average of C (2.0) is required for graduation. A "C" (2.0) average is also required in the nursing major for graduation.

Incomplete grades will be handled on an individual basis.

Students are responsible for being certified for CPR by the end of NU 300. Certification is to be renewed annually and is prerequisite to graduation.

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## **Nursing courses**

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### **NU 100 • 3 credits** **Contemporary Health Issues** **TV Course**

Many health problems are self-inflicted. Course is designed to counteract apathy and dispel myths through accurate health information. Topics include emotional health, human sexuality, personal health, disease and chemical alterations of behavior. Nursing elective; may fulfill elective credits for non-majors.  
No prerequisites.

### **NU 105 • 3 credits** **Human Nutrition**

The purpose of the course is to introduce the student to the principles of human nutrition. Main classifications of nutrients will be covered with emphasis on their role

in health maintenance. Factors which effect the nutritional status of individuals, including stage in the life cycle, will also be introduced along with current nutritional problems in the U.S. May fulfill elective credits for non-majors.  
Elective for Nursing majors.

**NU 109 • 3 credits**  
**Introduction to Public Health**  
Provides an overview of structure, organizational function and administration of community health agencies at state, local, regional and federal levels. The physical, sociological, political and environmental aspects of public health as well as control of communicable and chronic diseases are examined. Nursing elective; may fulfill elective credits for non-

majors.  
No prerequisites.

**NU 151 • 3 credits**  
**Understanding and Care of the Elderly**  
Focuses on knowledge of the aged and the aging process to facilitate continued development of awareness, sensitivity and skill in the care of the elderly. Designed for those who work in direct care services. Nursing elective; may fulfill non-nursing elective credits. Not open to nursing majors who have taken NU 160.  
No prerequisites.

**NU 160 • 3 credits**  
**Meaningful Motivation of Elders**  
Course provides a working foundation for helping elderly to retain or develop active

and meaningful pursuits during retirement. Focuses on identity crisis, goal-orientation and support, personality reconstruction and methods of meaningful motivation. Nursing elective; may fulfill elective credits for non-majors. Not open to nursing majors who have taken NU 151.  
No prerequisites.

**NU 205 • 3 credits**  
**Interpersonal Skills in Human Relations**  
Knowledge of communication skills which will provide effective approaches and interventions in dealing with others. Opportunity to learn and internalize the interpersonal relationship necessary in dealing with everyday human behaviors.  
No prerequisites.

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**NU 207 • 3 credits**

**Women's Health Issues**

A general course about women's health needs and physiological events during the various stages of life. Focus is on providing basic health information related to women's reproductive capacity. Nursing elective; may fulfill elective credits for non-majors. No special conditions or prerequisites.

**NU 300 • 12 credits**

**(Lab 310)**

**Basic Principles of Professional Nursing**

Three main themes are identified in this course which become the basis for development as a professional nurse: the nursing process as the basic tool of nursing practice, use of self in relationship to others in the health care system, and stress adaptation and optimal level of functioning which provides a knowledge base for delivery of nursing care. The focus of the clinical experience is on the care of the individual.

Prerequisite: pre-nursing program.

**NU 305 • 6 credits**

**(Lab 315)**

**Foundation of Professional Nursing**

For RN's only. The focus is the same as NU 300.

**NU 303-304 • 6 credits**  
**Selected Mechanisms of Diseases and Related Pharmacology I & II**

These two courses will center on phycho-physiological and pharmacological aspects that apply to all nursing practice. Placement: NU 303 second semester sophomore year. NU 304 first semester junior year (successful completion of NU 303).

**NU 306 • 12 credits**

**(Lab 316 or 416)**

**Parent Child Nursing**

The student applies the nursing process to the care of parents, children, and family members in collaboration with members of the health team. Clinical experience in a variety of institutional and community agencies.

Prerequisites: NU 300, 303, 304.

**NU 308 • 12 credits**

**(Lab 318 or 418)**

**Nursing the Adult Patient**

The student develops further skills in utilizing the nursing process to assist the adult who faces barriers to optimal level of functioning. Students have clinical practice in various community and institutional settings where ill adults are located.

Prerequisites: NU 300, 303, 304.

**NU 403 • 6-10 credits**

**(Lab 413)**

**Advanced Nursing Process**

Required for RN's. Advanced nursing process is designed: (1) to enable the senior nursing student to participate in the care of people with complex health problems, and (2) through the use of nursing process, literature search, and selected research techniques, to identify criteria for selection/design and evaluation of interventions appropriate to a single complex problem focus.

Prerequisites: NU 305, NU 303-304, NU 306, NU 308 or successful challenge of appropriate courses.

**NU 405 • 3 credits**

**Nurse As Manager**

Course promotes the nurse to function in a beginning management role. Principles of

management, group behavior and interpersonal relationships will be applied to nursing theory, describing a patient-centered approach to management of a nursing unit. Nursing elective; may fulfill elective credits for non-majors.

Prerequisites: Registered Nurses or approval of Instructor.

**NU 409 • 14 credits**

**(Lab 419)**

**Nursing Management in Complex Health Problems**

Course content will include criteria for defining and managing complex health problems; the leadership role in beginning practice; history, trends, and legal aspects of practice; health legislation; and research in nursing practice. Management of selected complex problems will occur for each student in both institutional and community settings and will address the goals of primary, secondary, and tertiary prevention.

Prerequisites: all other nursing courses.



# Division of Continuing Studies and Special Programs

## Higher Education for Adults

The dominant purpose of the Division of Continuing Studies is to identify and serve the educational needs of the adult southeastern Massachusetts community. All courses of study leading to degrees in the undergraduate and graduate programs of the Division are approved by the faculties involved and are governed by the general University academic regulations.

Degree programs have been developed in the areas of business administration and liberal arts. Undergraduate degrees are offered in Management, Accounting, History, English, Multidisciplinary Studies, Psychology, Political Science, Sociology and Humanities and Social Sciences. Courses are offered at times convenient to adult students pursuing a degree part time. Students may enroll in a single course or a program leading to a Bachelor of Arts degree, a Bachelor of Science degree or Masters degree in Business Administration, Art Education, Medical Laboratory Science and Bilingual Education.

Students who do not wish to pursue a degree may take one or more courses according to their interest. The credit courses may be applied to a degree program at a later date, or at another college or university. Non-credit offerings frequently culminate in the awarding of a certificate or of continuing education units (CEUs).

## Open Enrollment

Anyone who has completed high school or has the equivalent of a high-school education may register for undergraduate courses in the Division. No transcripts, diplomas or other documents are necessary to register for courses, except where specific course prerequisites must be met.

## Degree Candidacy

Anyone who has successfully completed 30 credits of 2.0-average course work at SMU or any other accredited higher education institution is eligible to be an undergraduate degree candidate.

Application to degree candidacy may be made directly through the Division of Continuing Studies. Applications and information will be mailed on request.

## Graduate Degrees

Graduate degree programs in the Division of Continuing Studies are offered in Bilingual Education (MA), Business Administration (MBA), Medical Laboratory Science (MLS), and Art Education (MAE). For information on graduate programs, contact the Dean of the Graduate School in the Administration Building.

## Undergraduate Programs

Academic programs in Continuing Studies are designed to meet the needs of those who cannot pursue a full-time day schedule. Programs and courses may be arranged to complete a degree at an individualized pace, within various time-frames.

At present, the Division offers all the necessary courses to meet undergraduate degree requirements as defined elsewhere in this catalogue in the following disciplines:

College of Arts and Sciences:

English,  
History,  
Humanities and Social  
Science,  
Political Science,  
Psychology,  
Sociology.

College of Business and  
Industry:

Accounting Option,  
Management Option.

College of Nursing:

In addition, students may make arrangements to pursue a specialized program, such as multidisciplinary studies, covering several subject areas. Class schedules may also be arranged to include occasional day school courses. Registration in the day school is, however, quite restricted, primarily open to those who are day school degree candidates.

## Evening and Summer Sessions

The academic program in Continuing Studies is offered primarily in the Fall and Spring in the evening for the convenience of busy schedules of adults. The evening schedule continues through the first and second summer session. In addition the summer session contains a sequence of morning and afternoon courses also offered within the framework of established university degree programs.



### **Transfer Credit**

Credit may be granted for work completed in other accredited schools, colleges or universities. A degree candidate who wishes to receive transfer credit should have an official transcript sent to the Division of Continuing Studies. The prior course work will be evaluated and appropriate credit awarded.

### **Personal and Professional Development Program (PPDP)**

In the Spring of 1977 Continuing Studies initiated a cluster of workshops and training programs designed to encourage individual professional advancement and personal growth. Cultural enrichment activities are included in this offering.

Personal and Professional Development Programs will be offered in the Fall, Spring and Summer sessions. These programs are offered in addition to the established degree courses. Credit for participating in these programs is defined in non-academic terms, often leading to a certificate of successful participation, continuing education units (CEUs), and to professional promotion and recognition.

### **Cedardeil: Summer Arts Performance and Training**

Twelve successful summer programs have established the Summer Music Institute as an outstanding national cultural event at SMU. The Summer Music Institute features an Opera Program under the direction of world-renowned impresario Boris Goldovsky, an extensive

chamber music program under the direction of Professor Josef Cobert and specialized workshops in piano and ballet.

The Summer Music Institute attracts young singers of growing national renown who train and perform with Maestro Goldovsky. In cooperation with the chamber orchestra and the other activities, a strong and varied selection of programs is offered during July.

Also the Kodaly Center summer course is entering its fourth season of training and performances, adding a special new dimension to summer cultural events on the SMU campus.

### **Bilingual/Bicultural Education**

Three years of successful planning and development led to the establishment in 1974 within the Division of Continuing Studies of a Master's degree program in Bilingual and Bicultural Education. Support of federal funds has enabled the program to offer a growing array of academic programs and non-credit training in languages, education, overseas study, cross-cultural awareness, and research.

### **The Institute on Health and Long Life**

The Institute on Health and Long Life was formed in 1974, as an independent activity within the Division of Continuing Studies, by a group of community and university people interested in improving information, research, training programs and services for the aging. While the primary emphasis of the Institute in its forma-

tive years has been on programs and services for elders, the central concern of the Institute is on aging as a developmental process. The Institute has sponsored academic courses such as Elder Affairs and American Life and Politics, workshops (for example, Sexuality after the Middle Years), and training programs (including community training for Elder Affairs and training women to counsel older women).

The Institute membership is open to all in southeastern Massachusetts. Its programs are offered on diverse subjects to a variety of institutional and other community agencies and professional participants. In some Institute-sponsored academic courses, elders 59 years of age and older may register without paying tuition. Further information about the Institute and its activities may be requested from the Staff Coordinator, Institute on Health and Long Life, Division of Continuing Studies.

### **Labor Education Center**

Collaborative efforts encouraged by labor union leaders and university faculty and staff have resulted in the establishment at the University of the Arnold M. Dubin Labor Education Center. The center has sponsored several workshops and other activities. Implementation of a wider range of support services for union members and research and study of the labor movement in America and activities designed to improve the quality of working life is anticipated in the next phase of the development of the center.

### **Continuing Studies Student Government**

In April 1977 the Board of Trustees approved the Constitution to establish the Continuing Studies Student Government. CSSG plays a governing role for evening and summer session students analogous to the Student Senate for day school students. All Continuing Studies students may participate in elections for the CSSG organization and may become officers. Information about CSSG may be obtained from the Division of Continuing Studies student services office.

### **Continuing Studies Advisory Committee**

In the Fall 1976 a student-faculty advisory committee was created for the Division of Continuing Studies. CSAC consists of 7 faculty, 7 students and 1 administrative member. The Dean of Continuing Studies is an ex-officio non-voting member. The faculty members are chosen by the faculty, the student members are chosen by the Continuing Studies Student Government and the administrative representative is appointed by the administration.

### **Teacher Certification Courses**

Individuals choosing to meet state teacher certification requirements may register for courses offered in Continuing Studies in the Evening Session or the Summer Session by the Education Department. These courses apply as electives in various programs leading toward a degree as well as towards teacher certification. An individualized program, such as multidisciplinary studies,

may integrate education courses with courses in other disciplines.

At the present time the Department of Education does not offer a Master's Degree in Education. However, cognizant of the needs of the teachers in our surrounding communities, the Department in conjunction with the Division of Continuing Studies offers courses which carry graduate credits to help them satisfy the requirements of their school systems, meet additional certification requirements, and provide opportunities for further professional development.

Members of the Department of Education also welcome the opportunity of developing with the various school systems in the region in-service courses tailored to meet the specific educational needs of their teachers. Such courses would also carry graduate credits.

Information regarding the Massachusetts Teacher Certification requirements and application forms are available at the Continuing Studies office or the Education Department.

#### **Non-traditional Prior Learning Program**

Non-traditional prior learning is an innovative new program which enables participants to gain academic credit, based on previous learning and working experience.

It is designed for the returning adult student who would like to earn credits toward a degree based on the evaluation of individual knowledge at the college level from prior learning and working experience.

Prior to registration an interview with the prior learning coordinator is required to ascertain if the program is suited to the student's particular course requirements and educational goals.

#### **CLEP**

Credit is granted upon successful completion (above 50 percentile score) of appropriate examinations in the College Level Examination Program (CLEP). Depending on degree requirements, CLEP credits may be used to satisfy course and distribution requirements or as free electives. The exams are given monthly at SMU by the Division of Continuing Studies. Application in the Continuing Studies Office in advance is necessary to take the exams.

#### **Advisors**

Academic advisors are available by appointment through the Continuing Studies office to assist the student in planning a program suitable to educational and career objectives.

#### **Contract Learning**

Contract Learning, which enables students to earn academic credits for experiential learning projects formulated with the advice and consent of faculty, is open to Continuing Studies degree candidates. The program is open to all SMU degree candidates who, in

general, have completed 54 credits. Students with fewer credits may establish capability for a proposed project and may participate in the program. For a complete description of this program see the general information section of this catalogue.

#### **Tuition and Fees**

In Continuing Studies courses, tuition is \$45.00 per undergraduate credit and \$65.00 per graduate credit except where otherwise stated in the course list. Auditors to credit courses are responsible for the same tuition as those taking the course for credit. All registrants in credit courses must pay the general student fee at the rate of \$3.00 per credit (\$20 maximum), the registration fee of \$10, a late registration fee of \$10, and a library fee of \$1.00 per credit to a maximum of \$15.00 per semester. Exceptions to this rate may be published in the official course list. A fee of \$10 will be charged for each drop/add transaction but excluding changing registration because of course cancellation.

Whenever it is appropriate to the activity, a laboratory or studio fee may be charged. Such fees are based on the cost of supplies, equipment, material or models pertaining to the activity. Laboratory and studio fees are refundable only when the course is cancelled.

Program fees for non-academic activities vary with the activity. For the non-credit programs, a single participation fee is charged, no registration or student fees are paid. Fees for non-credit activities are published in advance and payment is in advance.

The University reserves the right to alter tuition and fees, and to cancel, split sections, or reschedule or reassign any faculty for any course.

The Division of Continuing Studies is operated at SMU at no expense to the Commonwealth. All programs and activities are supported by tuition and fees of the participants.

#### **Registrants 59 and Older**

Tuition for Continuing Studies courses is free for students 59 years of age or older on a space available basis in those courses otherwise confirmed. Elders must register in the Group I building, lower level, in person with proof of age after classes are confirmed. There will be a \$3.00 per credit student fee, a \$10.00 registration fee, lab or studio fees as appropriate, and a library fee of \$1.00 per credit to a maximum of \$15.00 per semester. All other procedures such as Drop/Add will be the same for all students.



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**Withdrawals and Refunds**

Students who withdraw from Continuing Studies classes for any reason are eligible for 90 percent refund during the first two weeks of classes and 60 percent refund of tuition during the third through sixth week of classes. No refunds of tuition are made thereafter. Students whose class is cancelled for the semester are entitled to full refund of tuition and fees if application is made at the Bursar's Office before the final session of the class.

Fees are refundable only if the student's registration is nullified by course cancellation.

**BEOG**

The Basic Educational Opportunity Grant (BEOG) is the primary funding source of Continuing Studies degree candidates who have financial need. The grant application and assistance in filling out the application are available in the office of Continuing Studies and the Student Financial Aid Office. The applications are processed by the federal government. Aid in filling out the forms can be also obtained at the Educational Opportunity Center on Spring and County Streets in New Bedford. The grant is processed for any student who is a degree candidate and is enrolled for

at least six credits per semester. Unused portions of the grant may be used only for the months of May and June for the summer session.

**National Direct Student Loans, Guaranteed Student Loan Program**

These federally supported loans are available to students who are degree candidates carrying at least one-half the normal academic schedule or 6 credits. Loans under these programs are arranged by the student directly with participating banks or other financial institutions.

**Veterans' Benefits**

Students in Continuing Studies who need to ascertain eligibility for veterans' benefits should contact the Veterans' Affairs Office in the Group I Building. Since the Division of Continuing Studies is supported fully by participants' tuition and fees and not by tax dollars, veterans are subject to the same fees, tuition and payment schedules as other Continuing Studies students.



# Affirmative Action Policy

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## Affirmative Action Policy

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Southeastern Massachusetts University is an Affirmative Action/Equal Opportunity Employer. The University particularly encourages applications from members of minority groups and women.

It is the policy of Southeastern Massachusetts University not to discriminate against any applicant for employment or admissions, or against any employee, or in any educational programs on the basis of race, color, religion, national origin, age, sex, or condition of handicap as required by Executive Order 11246 as amended, Title IX of the 1972 Educational Amendments, and Section 504 of the Rehabilitation Act of 1973.

The University's Affirmative Action Plan is intended to guarantee equality of opportunity in employment and education, and to reduce the under-representation and under-utilization of minority groups and women at the University. For all categories of employment, our objectives are to meet or to exceed our projected goals and timetables while, at the same time, providing new opportunities for career development.

Similarly, for all of the University's educational programs, our objectives are to achieve a representation of minority groups and women in the student body which reflects their current availability and interests. Furthermore, these individuals will be encouraged to take full advantage of all University resources which might enhance their educational exposure.

Students who have personal concerns relating to their minority group or sex status should relate those concerns to the Affirmative Action Officer.

Inquiries regarding compliance with these regulations may be directed to Richard A. Williams, Affirmative Action Officer, Room 328, Foster Administration Building, 617-999-8018.

# Faculty and Administrators




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## Faculty

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### **Aaronson, Roberta H.**

Assistant Professor of Sociology (1978); B.A. 1969, University of Rhode Island; M.S.W. 1975, University of Minnesota

### **Adams, Robert T.**

Assistant Professor of Music, (1978); A.B. 1968, University of California, Conservatoire National Supérieur de Musique 1968-69, Het Amsterdamsch Conservatorium 1970-72; M.A. 1973, Ph.D. 1975, University of California

### **Ahearn, Marie L.**

Professor of English (1965); A.B. 1953, Regis College; Ed.M. 1958, Tufts University; A.M. 1961, Boston College; Ph.D. 1965, Brown University

### **Ali, Shaukat**

Professor of Political Science (1970); B.A. 1942, M.A. 1945, M.P.A. 1964, University of Punjab, India; D.P.A. 1965, University of Southern California

### **Along, Theodore J.**

Assistant Professor of Management (1979); B.A. 1969, Monroe Community College; B.S. 1971, M.B.A. 1973, Rochester Institute of Technology

### **Andersen, L. Bryce**

Dean, College of Engineering (1980); Professor of Engineering (1980); B.S. 1950, M.S. 1951, M.A. 1962, University of Minnesota; Ph.D. 1954, University of Illinois

### **Anderson, Gordon F.**

Professor of Mechanical Engineering (1967); Chairperson of Mechanical Engineering Department; Sc.B. 1948, Sc.M. 1951, Ph.D. 1962, Brown University; Registered Professional Engineer

**Argy, Dimitri**

Professor of Mechanical Engineering (1967); Dip. Ing. 1946, National Institute of Technology, Athens, Greece; Dr. Ing. 1955, Aachen Institute of Technology, Aachen, Germany; Registered Professional Engineer

**Aruri, Naseer H.**

Professor of Political Science (1965); B.A. 1959, American International College; M.A. 1961, Ph.D. 1967, University of Massachusetts

**Asato, Yukio**

Professor of Biology (1971); B.A. 1957, M.S. 1966, Ph.D. 1969, University of Hawaii

**Atwater, Nathaniel B.**

Associate Professor of English (1969); A.B. 1959, M.A. 1964, Brown University; Ph.D. 1968, University of Exeter, England

**Bailey, Angus**

Special Director of Dramatics (1966); A.B. 1939, Brown University

**Barense, Diane**

Assistant Professor of Philosophy (1978); B.A. 1970, University of Texas; Ph.D. 1979, Temple University

**Bar-Yam, Zvi**

Commonwealth Professor of Physics (1964); B.S. 1958, M.S. 1959, Ph.D. 1963, Massachusetts Institute of Technology

**Barry, Robert E.**

Professor of Design (1969); B.F.A. 1953, M.A.T. 1967, Rhode Island School of Design

**Bates, Alan H.**

Associate Professor of Chemistry (1971); B.S. 1965, Allegheny College; A.M. 1966, Ph.D. 1970, Harvard University

**Bento, Robert**

Professor of Physics (1961); B.S. 1956, Providence College; M.S. 1959, University of Maryland

**Berger, David E.**

Associate Professor of Economics (1972); B.S. 1963, Temple University; M.B.A. 1966, Drexel Institute of Technology; M.A. 1968, Ph.D. 1972 Washington University

**Bessette, Russell R.**

Professor of Chemistry (1968); B.S. 1962, University of Rhode Island; M.S. 1965, Ph.D. 1967, University of Massachusetts

**Bide, Martin**

Assistant Professor of Textile Sciences (1981); B. Tech. 1974, Ph.D. 1980, University of Bradford

**Boerth, Donald W.**

Assistant Professor of Chemistry (1978); B.S. 1969, North Dakota State University; Ph.D. 1974, University of Minnesota

**Breuning, Siegfried M.**

Professor of Civil Engineering (1971); M.S.C.E. 1949, Technical University, Germany; D.Sc. 1957, Massachusetts Institute of Technology and Harvard

**Bronstad, Joseph A.**

Associate Professor of Foreign Languages and Literature (1973); B.A. 1966, Lawrence University; M.A. 1968, University of Wisconsin; Ph.D. 1975, University of Connecticut

**Brush, Hamilton M.**

Associate Professor of Education (1971); B.A. 1942, M.A. 1947, Yale University; M.Ed. 1953, University of Cincinnati; Ed.D. 1976, University of Massachusetts

**Bush, John E.**

Associate Professor of Sociology (1973); B.A. 1950, Delaware State College; M.S. 1954, Westminster College; M.A. 1968, Ph.D. 1976, University of Pittsburgh

**Butler, Martin J.**

Associate Professor of History (1963); B.A. 1956, Providence College; M.A. 1957, Boston College; Ph.D. 1972, Pennsylvania State University

**Bygrave, William V.**

Associate Professor of Management (1979); B.A. 1959, M.A. 1963, Ph.D. 1964, Oxford University; M.B.A. 1979, Northeastern University

**Caliri, Victor P.**

Associate Dean of College of Arts and Sciences (1973); Associate Professor of Psychology (1979); B.S. 1953, Ed.M. 1954, C.A.G.S. 1972, Boston University; M.A. 1963, Holy Cross College; Ph.D. 1977, Boston College

**Campbell, Allan L.**

Associate Professor of Civil Engineering (1962); B.S. 1951, Northeastern University; M.S. 1966, University of Rhode Island; Registered Professional Engineer

**Campbell, Ronald A.**

Professor of Biology (1971); B.S. 1965, Roanoke College; M.A. 1967, University of Richmond; Ph.D. 1971, Iowa State University

**Carey, Ann T.**

Associate Professor of History (1971); Chairperson, Department of History; B.A. 1957, M.A. 1959, Smith College; Ph.D. 1972, University of Rochester

**Carlin, Kerry Drew**

Assistant Professor of Music (1978); B.M. 1974, Cleveland Institute of Music; M.M. 1977, Indiana University School of Music

**Carlson, Eleanor**

Professor of Music (1973); Chairperson, Department of Music; B.M. 1959, Oberlin Conservatory; M.M. 1960, Indiana University; D.M.A. 1974, Boston University

**Caron, Paul R.**

Professor of Electrical Engineering (1970); B.S. 1957, Bradford Durfee College of Technology (SMU); M.S. 1960, Ph.D. 1963, Brown University; Registered Professional Engineer

**Carreiro-Lewandowski, Eileen**

Assistant Professor of Medical Technology (1981); B.S. 1975, Rhode Island College; M.S. 1979, University of Kentucky

**Carrera, Magali M.**

Assistant Professor of Art History (1977); B.A. 1972, Arizona State University; M.A., 1974, M. Phil. 1976, Ph.D. 1977, Columbia University

**Carroll, John J.**

Assistant Professor of Political Science (1979); B.A. 1965, Northeastern University; M.A. 1972, Ph.D. 1977, Brown University

**Carter, Lynn Tondat**

Associate Professor of Psychology (1975); B.A. 1971, M.A. 1973, State University of New York; Ph.D. 1975, Ohio University

**Caruso, John L.**

Associate Professor of Psychology (1972); A.B. 1968, Fairfield University; M.S. 1970, Ph.D. 1972, University of Pittsburgh



**Cass, Walter J.**

Professor of Education (1948); A.B. 1943, Northeastern University; M.A. 1947, Ed.D. 1967, Boston University

**Chandy, John A.**

Professor of Mathematics (1965); B.S. 1954, Kerala University, India; M.A. 1962, Ph.D. 1965, Boston University

**Chen, Chi-Hau**

Professor of Electrical Engineering (1968); B.S. 1959, National Taiwan University, Taipei, Taiwan; M.S. 1962, University of Tennessee; Ph.D. 1965, Purdue University

**Chopoorian, John**

Associate Professor of Management (1977); B.S. 1954, Brown University; Ph.D. 1960, Florida State University; Fulbright Scholar 1960-61, University of London

**Christlan, Ellen G.**

Associate Professor of Institutional Nursing (1974); B.S. 1969, Boston University; M.S. 1973, University of Colorado

**Clark, Judith**

Associate Professor of Community Nursing (1973); B.S. Ed., Fitchburg State College; M.S. 1973, Boston University School of Nursing

**Cleare, Julie**

Associate Professor of Psychology (1971); B.A. 1961, Seton Hall College; M.A. 1963, Ph.D. 1968, Fordham University

**Cleffi, Americus J.**

Assistant Professor of English (1966); B.A. 1953, M.A. 1956, University of Missouri

**Cobert, Jacqueline Bazinet**

Assistant Professor of Music/Voice (1965); New England Conservatory

**Cobert, Josef**

Professor of Music (1964); Diploma 1949, Paris National Conservatory; B.M. 1957, M.M. Mus. Ed. 1958, Boston University; D.M. 1972, Florida State University

**Cormier, Edward A.**

Professor of Accounting and Finance (1958); B.S. 1948, Providence College; Ed.M. 1955, Boston University; Certified Public Accountant

**Corriveau, Donald P.**

Assistant Professor of Psychology (1980); B.A. 1973, Providence College; M.A. 1975, Ph.D. 1978, University of Rhode Island

**Cory, Lester W.**

Associate Professor of Electrical Engineering (1963); B.S. 1963, Bradford Durfee College of Technology (SMU); M.S. 1970, Northeastern University; M.Ed. 1974, Bridgewater State College.

**Counsell, Alden W.**

Professor of Mechanical Engineering (1953); B.S.M.E. 1949, Northeastern University; Registered Professional Engineer

**Creamer, David J.**

Professor of Mechanical Engineering (1964); B.S. 1958, Bradford Durfee College of Technology (SMU); M.S. 1960, University of Massachusetts; Registered Professional Engineer

**Creighton, Richard J.**

Assistant Professor of Fine Arts (1981); B.A. 1975, University of New Hampshire; M.F.A. 1981, Pennsylvania State University

**Crowley, Michael**

Professor of Mathematics (1958); B.S. 1947, M.A. 1949, Boston College

**Cummings, Herbert P.**

Professor of Fine Arts (1966); B.F.A. 1951, Washington University; M.A. 1952, Indiana University

**Dace, Tish**

Dean, College of Arts and Sciences (1980); Professor of English (1980); A.B. 1963, Sweet Briar College; M.A. 1967, Ph.D. 1971, Kansas State University

**Darden, Genevieve M.**

Associate Professor of English (1967); B.S. 1938, M.A. 1967, Boston University

**Das Neves, Maria T.**

Lecturer in Portuguese (1981); M.A. 1977, University of Coimbra

**DeJesus, Ora**

Assistant Professor of Community Nursing (1977); R.N. 1966, Newton Junior College; B.S. 1975, Salve Regina College; M.S. 1976, Boston University

**dePagter, James K.**

Professor of Physics (1965); B.S. 1951, University of Arkansas; Ph.D. 1958, Washington University

**Deveau, Roger J.**

Associate Professor of Management (1970); B.S. 1965, Southeastern Massachusetts University; M.B.A. 1967, Texas A & M University; D.Ed. 1976, Boston University

**Dillon, Mary Ann**

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**Diplppo, Ronald**

Professor of Mechanical Engineering (1967); Sc.B., 1962, Sc.M. 1964, Ph.D. 1966, Brown University

**Dluhy, Nancy**

Assistant Professor of Institutional Nursing (1981); B.S.N. 1967, University of Delaware; M.S.N. 1981, University of Rhode Island

**Donnelly, Paul A.**

Assistant Professor of Psychology (1979); B.A. 1971, Providence College; M.A. 1974, Assumption College

**Dowd, John P.**

Professor of Physics (1967); S.B. 1959, Ph.D. 1966, Massachusetts Institute of Technology

**Downey, Catherine M.**

Professor of Education (1967); B.S. 1956, M.Ed. 1958, Boston College; Ed.D. 1963, Boston University

**Doyle, Jean**

Associate Professor of Political Science (1973); B.A. 1965, Oberlin College; M.A. 1968, Ph.D. 1973, Boston University

**Dumont, Raymond A.**

Assistant Professor of English (1981); B.A. 1969, M.A.T. 1971, University of Massachusetts; D.A. 1979, Idaho State University

**Dupre, Edmund J.**

Associate Professor of Textile Sciences (1942); B.S. 1948, North Carolina State College; M.Ed. 1957, Boston University

**Dupuy, Alex**

Assistant Professor of Sociology (1979); B.A. 1973, University of Connecticut; M.A. 1976, Brandeis University; Ph.D. 1977, SUNY at Binghamton

**Edgar, Robert Kent**

Professor of Biology (1968); B.A. 1965, University of Virginia; M.S. 1968, Ph.D. 1970, Rutgers University

- Elfenbein, Morton H.**  
Professor of Psychology (1970); Chairperson, Department of Psychology; A.B. 1965, M.A. 1967, Ph.D. 1970, Boston University
- Elliott, Willoughby R.**  
Associate Professor of Fine Arts (1967); Chairperson, Department of Fine Arts; B.F.A. 1965, Chouinard Art Institute; M.F.A. 1967, Rhode Island School of Design
- Esposito, Frances F.**  
Professor of Economics (1967); B.A. 1961, St. Francis College; M.A. 1962, Fordham University; Ph.D. 1967, Boston College
- Estes, Lee Edward**  
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Professor of Medical Technology (1962); Chairperson of Medical Technology; A.B. 1956, Barnard College; M.Ed. 1960, Boston University; M.S. 1968, Northeastern University
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- Fisher, Elaine**  
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- Fitzgerald, John J.**  
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Dean of Faculty and Dean of the Graduate School (1971); Professor of Political Science (1971); A.B. 1956, Columbia College; A.M. 1958, Ph.D. 1964, New York University
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- Freier, Jerome**  
Professor of Mathematics (1965); B.S. 1939, City College of New York; Ph.D. 1958, New York University
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- Glasser, Howard T.**  
Associate Professor of Design (1970); Art Students League of New York and Brooklyn Museum Art School
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Assistant Professor of Design (1977); B.F.A. 1974, University of Illinois; M.F.A. 1976, University of Massachusetts
- Golen, James**  
Assistant Professor of Chemistry (1976); B.S. 1965, Southeastern Massachusetts University; Ph.D. 1970, University of Massachusetts
- Gonsalves, Lenine M.**  
Professor of Electrical Engineering (1953); B.S. 1952, United States Naval Academy; M.S.E.E. 1960, Northeastern University; Registered Professional Engineer
- Gorczyca, Fryderyk E.**  
Professor of Mechanical Engineering (1958); B.S. 1958, New Bedford Institute of Technology (SMU); M.S. 1962, Northeastern University; Registered Professional Engineer
- Gray, John W.**  
Professor of Electrical Engineering (1972); B.S.E.E. 1957, University of Nebraska; M.E.E. 1959, New York University; Ph.D. 1966, Ohio State University
- Griffith, James T.**  
Associate Professor of Medical Technology (1974); B.S. 1970, Southeastern Massachusetts University; Certified 1970, The Memorial Hospital of Pawtucket School of Medical Technology; M.S. 1976, Southeastern Massachusetts University
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Assistant Professor of Biology (1976); B.A. 1965, Catawba College; M.S. 1968, Ph.D. 1972, Yale University
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Assistant Professor of Business Administration (1961); B.S.B.A. 1950, Boston College; J.D. 1953, Boston College Law School
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Professor of Psychology (1967); B.A. 1963, Brandeis University; A.M. 1965, Ph.D. 1970, Boston University
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Professor of Physics (1970); B.Sc. 1945, M.Sc. 1946, Dacca University; Sc.D. 1954, Massachusetts Institute of Technology
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- Legault, Richard D.**  
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Professor of Physics (1967); B.S. 1955, University of Illinois; M.S. 1957, Ph.D. 1963, Massachusetts Institute of Technology
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Professor of Art Education (1971); B.A. 1961, Queens College; M.F.A. 1962, Columbia University; Ed.D. 1970, Columbia University Teachers College
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Associate Professor of Music (1971); B.A. 1952, M.M. 1967, M.M.A. 1970, D.M.A. 1978, Yale University
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Associate Professor of Design (1965); B.A. 1962, M.A. 1968, Rhode Island School of Design
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Dean of Students (1968); Associate Professor of English (1954); A.B. 1953, Stonehill College; A.M. 1955, Boston College
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**McCabe, Robert**

Professor of Mathematics (1964); B.S. 1957, Union College; M.A. 1960, San Diego State College; Ph.D. 1971, Boston University

**McCarthy, Walter J.**

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Professor of Fine Arts (1959); B.F.A. 1950, University of Kansas; Diploma 1951, Academie Royale des Beaux Arts, Liege, Belgium; M.F.A. 1952, University of Kansas

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Professor of Art (1968); A.B. 1954, Oberlin College; M.F.A. 1965, Temple University

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Professor of Psychology (1968); B.A. 1954, Dartmouth College; M.Ed. 1960, State College at Bridgewater, A.M. 1962, Ph.D. 1969, Boston University
- Panos, Margaret A.**  
Associate Professor of English (1962); A.B. 1954, Stonehill College; M.A.T. 1966, Brown University
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Professor of Mathematics (1954); B.S. 1954, Bradford Durfee College of Technology (SMU); A.M. 1961, Boston University
- Parker, Henry S.**  
Assistant Professor of Biology (1979); B.A. 1966, Harvard University; M.M.A. 1971, Ph.D. 1979, University of Rhode Island
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Dean of College of Nursing (1977); Professor of Nursing (1977); R.N. 1952, Massachusetts General Hospital; B.S. 1958, Simmons College; M.S. 1960, Boston University; Ph.D. 1969, Michigan State University
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Professor of Design (1966); 1948-1952 The Cooper Union Art School; B.F.A. 1957, Yale University
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Dean, Division of Continuing Studies and Special Programs (1974); Professor of Political Science (1974); B.A. 1954, Transylvania College; M.A. 1959, Ph.D. 1965, Syracuse University
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Design and production of the General Catalogue 1982-84 is the work of two graduates of Southeastern Massachusetts University's College of Visual and Performing Arts Design program: **Sandra Folsom Strand '81** and **Nancy Klein Trippe '82**.

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The General Catalogue was printed at no cost to the Commonwealth of Massachusetts. Funds for printing were donated courtesy of the Southeastern Massachusetts University Campus Shop.

RES-15M-3-82 (CSS-3772)













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